REPORT

ON

MEDICAL EDUCATION AT THE VERNACULAR MEDICAL SCHOOL, SEALDAH.

BY

The Committee appointed to enquire into Medical Expenditure in Bengal.

Calcutta:

PRINTED AT THE BENGAL SECRETARIAT PRESS.

1879.

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No. 509B.G., dated Calcutta, the 18th June 1878.

From—J. Irving, Esq., M.D., Officiating Surgeon-General, Bengal,

To—The Secy. to the Govt. of Bengal, Judicial, Political, and Appointment Depts.

I have the honor to submit, for the orders of His Honor the Lieutenant-Governor, copy of a letter from Dr. Mackenzie, Superintendent of the Campbell Medical School, dated 17th instant, regarding the mode of teaching therein pursued, and suggesting certain modifications and alterations.

I quite agree with Dr. Mackenzie when he says that hitherto the practice has been too closely to copy the methods of instruction followed in schools which aim at a higher standard of scientific knowledge than is required of Native Doctors; and I further agree with him in thinking that their education should be more practical. Hence the lectures should be few, but demonstrations and examinations from a text-book numerous.

A very important matter, as it seems to me, in promoting the future prosperity of this school will be to place the Superintendent directly under the Director of Public Instruction, and not under the Principal of the Medical College, Calcutta; and as the medical schools of Patna, Dacca, and Cuttack, are not under the Principal of the Medical College, and do remarkably well, there seems no reason why the Campbell Medical School should be subordinated to the Medical College, merely because they happen to be in the same place.

It is subversive of all discipline and order if, as I am told is the case now, that if Dr. Mackenzie does anything which the teachers do not approve, they should go to complain to the Principal or Professors of the Medical College.

I do not see any use in teaching Native Doctors chemistry, as they cannot possibly understand the subject, and as a matter of fact forget all they have been taught very shortly after they leave school. Materia Medica is very important; and, as Dr. Mackenzie suggests, practical pharmacy might be substituted for chemistry.

I do not agree with Dr. Mackenzie as to the length of the course of instruction. He advocates four years, I say three.

Anatomy should be chiefly taught in the dissecting-room, and the teacher should give nearly his whole time to it; not deliver a lecture, and then drive away from the hospital.

The instruction in medical jurisprudence, again, should be practical; and this could be easily managed by having suburban police cases sent to the hospital, as well as all bodies for medico-legal examination. When the case investigated came up for trial, so many of the students should go to Court in order to hear the medico-legal evidence given, and to learn the procedure in a court of justice.

The suggestion that the final examinations should be taken in two instalments seems a good one, viz. that after the second year the students should be taken in anatomy, pharmacy, and Materia Medica, and if they passed, they should be permitted to take the remaining subjects for the third year, at the end of which they should be examined in them. If, however, they did not pass in the first set of subjects after two years, they should not be allowed to take out the next set of subjects till they had done so.

It is necessary to point out that, if the system of teaching sketched by Dr. Mackenzie is authorized by Government, the present teachers will, to a man, be violently opposed to it, as it will involve on them very much more work and longer attendance at the school and hospital.

I do not, however, see that this should be an objection, seeing that, if they are found to be impracticable, there are many other assistant surgeons quite as competent, who will willingly take their places.

With these remarks I beg leave to submit Dr. Mackenzie's letter for the favourable consideration and orders of His Honor the Lieutenant-Governor.

Dated Calcutta, the 17th June 1878.

From—S. C. Mackenzie, Esq., M.D., Superintendent of the Campbell Medical School,

To—The Surgeon-General for Bengal.

In compliance with the request contained in your letter No. 463B.G., dated 13th instant, I beg to submit a statement of my views on the system of instruction that should be pursued in this school.

In my opinion the methods of teaching employed till now have been too closely copied from the ordinary medical curricula, which aim at a much higher standard of education. I think we should seek to train men in the practical part of their profession, and not attempt to impart a scientific knowledge of its different branches. For the latter purpose a much greater

amount of general education would be required than our men now possess; and if this were insisted on, they would be less contented with the subordinate position they are intended to fill. Even if the stringency of the present Entrance examination were increased, and the students compelled to possess a better general education before entering this school, it is very doubtful whether the European system of medicine could be thoroughly taught on a sound scientific basis in the Bengali language. The want of a sufficiently varied selection of good text-books in the vernacular must for a long time operate as a considerable check to progress in this direction. But for the reason I have already given, in my opinion, the Entrance examination does not need alteration.

Our object is to provide men who will be content to go into the villages, and practice at very small rates of remuneration, or fill inferior positions in the medical service. The Medical College turns out officers of scientific education: this school has simply to furnish useful and trustworthy subordinates. Keeping this object in view, I would cordially adopt your suggestion to abolish altogether the lectures on chemistry. An acquaintance with this subject is unquestionably essential in acquiring a scientific knowledge of medicine, but chemistry has no direct application to the everyday work of a Native Doctor. The lectures at present given involve a considerable annual expenditure for experimental illustration, and experience shows that the students have not sufficient general culture to derive adequate benefit from them. The most that is attained is a slight smattering of names and formulæ which is absolutely useless and is speedily forgotten.

In the place of chemistry, therefore, I would put practical pharmacy, the teaching of which should be developed so as to make the men expert and trustworthy dispensers.

Under the present rules the students are only required to pass three years in this school, during which time they attend the following lectures:—

First year.		Second year.		Third year	
	Lectures.		Lectures.		Lectures.
Anatomy	70	Anatomy	70	Anatomy	70
Materia Medica ...	70	Materia Medica ...	70	Materia Medica ...	70
Chemistry	70	Chemistry	70	Chemistry	70
		Surgery	70	Surgery	70
		Medicine	70	Medicine	70
		Midwifery	70	Midwifery	70
		Medical Jurisprudence	25	Medical Jurisprudence	25
		Hospital Practice.		Hospital Practice.	

I would propose to extend the time to four years, and to arrange the classes thus—

First year.	Second year.	Third year.	Fourth year.
Anatomy.	Anatomy.	Medicine.	Medicine.
Materia Medica.	Materia Medica.	Surgery.	Surgery.
Practical Pharmacy.	Surgery.	Midwifery.	Midwifery.
	Medicine.	Medical Jurisprudence.	Medical Jurisprudence.
	Hospital Practice.	Hospital Practice.	Hospital Practice.

In teaching these subjects I do not think lectures can be entirely dispensed with, but I would propose to replace them to a great extent by practical demonstrations and instruction, with frequent *vivâ voce* examinations. The latter ought to be properly organized and systematically conducted. Each teacher should divide his class into groups of 15 or 20, and, taking one group a day, devote at least an hour to questioning the men and explaining what they do not understand. Only the essential and practical portions of each subject should be taught. Theories and refinements should, as far as possible, be avoided Thus, in anatomy, the course should comprise the bones, ligaments, muscles, nerves, arteries, veins, internal organs, and surgical spaces, but no minute anatomy should be attempted. This instruction should be given chiefly in the dissecting-room, where the teacher and demonstrators should attend daily throughout the winter sessions from 10 A.M. to 4 P.M., to instruct and examine the students in their work. The lectures of the Teacher of Anatomy should be limited to 20, dealing chiefly with the physiology of the principal organs. These would be given in the summer sessions, the remainder of which might be devoted to demonstrations on the bones and their various attachments.

In Materia Medica considerable attention should be given to the indigenous drugs, and only the important remedial agents of the British Pharmacopæia described. The therapeutical uses of the Materia Medica should be made the most prominent feature of the course,

but the teaching should be conducted with good characteristic specimens, and the students exercised in recognizing them by their physical properties.

In surgery the lectures should be few, and only on the most important subjects. But each student should be made to practise bandaging thoroughly, to put up all the principal fractures, to pass the catheter, and to operate on the dead body.

In medicine the students should be carefully exercised in auscultation and percussion: they should be taught to make *post-mortem* examinations, and the teacher should demonstrate the pathological appearances with the dead body. The lectures should be confined to the principal diseases of a tropical or temperate climate, and the instruction ought to be mainly given at the bedside.

A strict rule is much needed enforcing the daily attendance of the clinical teachers during certain fixed hours, say from 7 to 10 A.M.

In midwifery and the diseases of women our facilities for practical teaching are very limited, as few women come to the hospital. The instruction here must be mainly given by lectures and demonstrations on the model, followed by *vivâ voce* examinations.

In medical jurisprudence I think 25 or 30 lectures should be given, and arrangements should also be made, in accordance with your suggestion, for practical instruction on the dead subject. This would be best done by requesting the Magistrate of the 24-Pergunnahs to send here all police cases within a reasonable distance of this hospital. The teacher of the school could be authorized to furnish the necessary *post-mortem* report, and to give evidence when required.

Should the Government approve of the system of teaching thus sketched out, I would urge the importance of strengthening my hands in the control of the school. At present I am only intermediary between the teachers and the Principal of the Medical College, and my authority is therefore too limited to enforce properly a system that will be doubtless somewhat distasteful to the present educational staff. I would suggest that I should be made directly responsible to the Director of Public Instruction and to the Surgeon-General, with full power to regulate and supervise the methods of teaching. This course has been already adopted with the Superintendents of the Vernacular Medical Schools at Dacca, Patna, and Cuttack.

The final examination of the students might be conducted by the Professors of the Medical College as at present, the Surgeon-General appointing them for that purpose; but I think it would be desirable to have two examinations at different periods instead of comprising all the subjects in one examination at the end of the course, as is now done. Students who have completed their second year should be allowed to go up in anatomy, Materia Medica, and pharmacy, and they should not be admitted to the senior classes until they have passed.

The subjects for the final or qualifying examination would be medicine, surgery, midwifery, and medical jurisprudence.

No. 2408.

COPY forwarded to the Director of Public Instruction, with the request that he will be so good as to lay the proposals therein made before the College Council for discussion, and submit the proceedings of the meeting of the Council, together with his own remarks, for the orders of Government.

By order of the Lieutenant-Governor of Bengal,

H. M. KISCH,

Offg. Under-Secretary to the Government of Bengal.

No. 2691, dated Calcutta, the 9th August 1878.

From—H. H. RISLEY, ESQ., Under-Secretary to the Govt. of Bengal,
To—The Director of Public Instruction.

IN supersession of the orders conveyed to you in this office endorsement No. 2408, of the 15th July 1878, I am directed to say that the Lieutenant-Governor desires that the question of the advisability of adopting the proposed change in the system of teaching pursued at the Campbell Medical School, Sealdah, as set forth in the papers forwarded to you, may be referred to the Medical Committee now sitting on the Judicial side of this Secretariat, for the purpose of reporting on medical institutions and medical expenditure generally in Bengal. His Honor particularly desires that the opinion of the Committee may be obtained on the length of course and course of study which should be prescribed, with special reference to the suggestions of Drs. Irving and Mackenzie.

No. 4146.

COPY forwarded to the Principal of the Medical College, with a request that the papers forwarded with this office No. 3980, dated 31st July, may be submitted as soon as possible to the Medical Committee as ordered by Government.

A. W. CROFT,
Director of Public Instruction.

No. 4147.

COPY forwarded to the Secretary to the Medical Committee now sitting for reporting on medical institutions and expenditure throughout Bengal, for information and guidance.

FORT WILLIAM,
The 10*th August* 1878.

A. W. CROFT,
Director of Public Instruction.

REPORT.

THE question of the medical education of hospital assistants of the Bengali class at the Campbell Medical School at Sealdah, opened up in the foregoing letters from the Superintendent of the School and the Surgeon-General, having been referred to the committee, they have carefully enquired into the subject, and after having ascertained the opinions of most of the Professors at the Medical College, taken the evidence of the teachers at Sealdah, considered the opinions of 26 selected medical officers as to the actual qualifications of the so-called native doctors, and examined a number of the students themselves, have agreed to the following report.

Present system.

The system of vernacular medical education is modelled on the system of teaching formerly universal in all medical schools. Its essence consists in attendance on certain set courses of lectures, coupled with a given amount of hospital practice. The lectures are given in Bengali, and the evidence of the teachers shows that each course includes with considerable minuteness all the details of its subject. An English student attending similar, though less numerous, courses of lectures, is expected to satisfy his examiners that he has a sound knowledge of the several subjects, and if he does so is considered fit to begin independent practice with safety to the public.

Similar to English.

Assistants only required.

From the Bengali student, however, much less is really required. He is intended primarily for a hospital assistant, able to carry out intelligently the orders of the medical officer under whom he is placed, and not to be an independent practitioner until he has served for at least two years to the satisfaction of his superior officer. Even then he is only put in charge of comparatively unimportant dispensaries, in localities too poor to support an assistant surgeon. A secondary object of the school is to educate village practitioners who will be content to settle in poor localities, to take the place now occupied by uneducated Baids, Hakíms, and Kobírajs, and extend to the poorer classes of the community as far as possible the benefits of a European medical training.

And village practitioners.

Pay small.

The pay of a hospital assistant begins at Rs. 10, and cannot, as a rule, exceed Rs. 60 a month. With these prospects it is unreasonable to expect that a student will work up to a high standard, and although it is important that the standard should be as high as possible, it must always be much lower than that required from the licentiates of the Calcutta University. We find accordingly that a much lower standard of preliminary education is required for entrance to the vernacular school. Now and then a brilliant student is met with, who can follow and reap the full advantage of the instruction given to him, but the evidence of the teachers themselves shows that the mass of men do not acquire any great amount of knowledge. The examiners are satisfied with a comparatively low standard; yet only 30 per cent. of those who go through the school ever succeed in passing.

Low standard of preliminary education.

And of examination.

Curriculum.

There is a very general consensus of opinion that, in spite of the elaborate education aimed at (the curriculum being as noted in the margin), the men who succeed in passing are very indifferently qualified, and are in the great majority of cases quite unfit to be placed in independent charges. It is the opinion of most of those best qualified to judge that they are to be trusted to treat only the commonest and simplest cases, and that they are not fit to perform surgical operations, to diagnose cases requiring skill or insight, to afford efficient aid in child-birth, or give intelligent evidence

First year.	Lectures.	*Second year.*	Lectures.	*Third year.*	Lectures.
Anatomy ...	70	Anatomy ...	70	Anatomy ...	70
Materia Medica	70	Materia Medica	70	Materia Medica	70
Chemistry ...	70	Chemistry ...	70	Chemistry ...	70
		Surgery ...	70	Surgery ...	70
		Medicine ...	70	Medicine ...	70
		Midwifery ..	70	Midwifery ...	70
		Medical jurisprudence ...	25	Medical jurisprudence ...	25
		Hospital Practice ...		Hospital Practice ...	

Men poorly qualified.

Unfit for independent charges.

in judicial cases. In the opinion of the committee it is distinctly proved that, in spite of the elaborate education offered, they fail to become competent practitioners, and are by no means always useful assistants.

Causes of this.

The teachers at Sealdah are able men, specially selected for the post. Why, then, is the result of the teaching so unsatisfactory? The committee would answer, because it aims too high, is too theoretical and too little practical for the class of men who have to be taught. Instead of imparting the kind of knowledge which is really required, it purports to supply a complete medical education, and it fails in the easily attainable by attempting the impossible. Instead of teaching we have lectures, and as a result the men leave the school with a minute book knowledge of anatomical details which they cannot apply in practice, and which are soon forgotten, but who cannot extract a tooth or set a fracture; men who will glibly run off pages of description of diseases of the heart and attempt to diagnose them by placing a stethoscope on the right nipple; who will pass an examination in chemistry, but cannot test a specimen of urine; who can describe the nice distinctions of medico-legal questions, but have never assisted in opening a body.

It is but fair to the teachers to say that considerable attention has quite recently been given to practical instruction, and the committee find that many of the students at present at the school have a fair knowledge of drugs, can apply bandages, analyse urine, and answer questions readily and intelligently.

Large percentage of failures.

Still the fact that only 48 per cent. passed at the last examination in spite of a moderate standard being required from them, and in spite of the fact that no student who had attended irregularly was allowed to appear for examination, shows that the great body of the men do not profit by their teaching. Up to the present time some 70 per cent. of the total number of students entering have never passed, although many of them have remained at the school four, five, six and even seven years. These years have been wasted, but the loss to individual students is small compared to the injury to the public involved in the fact that very many of the rejected students ultimately set up as private practitioners, to the detriment of the diligent students who have passed, and of the health of the people on whom they practise. If the men who pass are poorly qualified, the unsuccessful candidates must be poor indeed.

Rejected students set up as practitioners.

Lectures insufficient without practical work.

It is now generally recognized that mere lecturing is nearly useless, and that unless it goes hand in hand with practical work and frequent examinations, no good educational results will be achieved. The lectures themselves, in many European schools, have gradually become more practical, more of the nature of demonstrations, and a great improvement in medical education has resulted. But at Sealdah, although, as observed above, some attention has recently been given to practical work, the old style of lecture still prevails, and in most of the classes very few examinations are held. To make the tutorial system possible, to examine students effectively, it is essential that the classes should be of moderate size. This has never been the case at the vernacular school. When the impossibility of giving any practical teaching at the Medical College led to the transfer of the vernacular school to Sealdah, there were 760 students. The opening of additional vernacular schools at Dacca, Patna, and Cuttack has diminished these overgrown numbers, but there were still 430 at the end of the last session, and some of the classes were over 300 strong. All the teachers complain of these large numbers. The roll is called daily, occupying from five to 15 minutes of the lecture hour; but there is no means of enforcing the attention of students, or possibility of any intimate personal relations between the teachers and them, and it is quite impossible to examine more than a few at a time. The consequences are that the students are very much left to themselves, are in many cases idle, careless, and inattentive, and trust to reading up their subjects before the examinations. The estimate of the proportion of diligent students given by the teachers varies greatly: the most favourable view is "about a third," the next best "less than a fourth," while three teachers put it at from four or five to 10 to 15 per cent. As 30 per cent. pass the examination, it is clear that, even according to the estimate of the teachers themselves, the standard must be as low as other considerations have shown it to be.

Excessive numbers of students.

Proportion of diligent students.

Several of the medical officers consulted by the committee deprecate any lowering of the standard of education. There seems to be some confusion of ideas, however, between the standard aimed at and that actually realized or

realizable. The former is a complete medical education; the latter is probably the lowest achieved by any medical school. The object of a medical education is to train men to battle with disease; but this great end is often in danger of being overlooked in a misapprehension of the means to gain it. We turn out pretended chemists and anatomists instead of doctors, and a student's time is so taken up with the encyclopædic details of the many subjects in which he has to satisfy his examiners that he has nothing left for that practical work by which alone he can learn to apply his theoretical knowledge to the relief of disease. The committee have no wish to undervalue any branch of a medical education; their aim is to raise, and not to lower, the standard of results; but to do this effectually they are of opinion that considerable modifications are necessary in the present system of education and the present arrangements for teaching. Each student in his second and third year of study has to attend seven courses of lectures. When regard is had to the time required by native habits for meals, ablutions, &c., to that required for hospital practice and work in the dissecting and dispensary rooms, as well as the time taken in preparing for the examination looming in the distance, it is obvious that the plan proposed by some medical officers of adding practical work to the existing system can hardly be carried out. It is by making the existing system itself more practical, by lightening the burden of the work already thrown on the shoulders of the students, and not by adding to those burdens, that the committee hope for an improvement in the qualification of the men who pass, and in the percentage of those who succeed in passing.

Difference between standard aimed at and that realized.

Remedy for this.

Many of the students are sufficiently intelligent, and the committee believe that, under a more practical system of education, the realizable standard may be very greatly raised without increasing the length of the curriculum from three years to four, as has been proposed. Many useful native doctors were educated under the old system at district dispensaries—men who, though they had received no systematic medical education, were much better assistants and safer practitioners than the majority of the men now turned out. The experience of the medical members of the committee leads them to the belief that hospital assistants educated at the schools at Agra, Nagpore, and Lahore, are, as a rule, much better qualified than those educated at Sealdah, although none of those schools has so large a teaching staff, or is so well supplied with the appliances for teaching as the Sealdah school. In these institutions the number of students attending is comparatively small, so that each boy's capabilities can be gauged by his teacher and special attention can be given to his progress. The teacher is brought into close personal relation with him, can influence and stimulate him, explain difficulties to him, examine him frequently, and see that he profits by the instruction given. The wards are not crowded by an army of students, and the boys can see the cases and help in their management. The great number of students makes all these things very difficult at Sealdah. The good students monopolize the opportunities; the bad ones are very much left to themselves.

Great improvement possible.

Small schools give better results.

To effect the desired improvements at Sealdah it seems to the committee that five things are necessary—(*a*) limitation of numbers, (*b*) the improvement of the standard for entrance, (*c*) the simplification and diminution of the present courses of lectures, (*d*) more frequent examinations, and (*e*) much more practical work.

Changes considered necessary.

(*a*) *Limitation of numbers.*—The committee would recommend—

I.—That, in future, no more than 200 students be allowed in the school, and only sufficient entries be permitted each year to keep up the numbers.

Limitation of numbers.

Roughly speaking, this would give about 80 first-year students, 65 second-year, and 55 third-year men, and would make the classes manageable in size and well within the control of the teachers. The reduction should be effected gradually, and the committee would allow 50 new entries a year until it is effected, in order not to disturb the regular yearly supply of men required for service. The committee do not forget that, by raising the standard and diminishing the number of students, some difficulty may in future arise in obtaining a sufficient number of men for Government employ. They would therefore recommend—

To be effected gradually.

II.—That those students agreeing to enter Government service if called on, should be received on payment of the existing fees, while private students should be called on to pay fees more nearly proportioned to the expenses of their teaching.

Plan to secure sufficient men for Government service.

Preliminary education: present standard.

(*b*) *Improvement in the standard of preliminary education.*—At present there are four recognized standards. Each candidate must produce a certificate that he has passed (1) the entrance examination of the Calcutta University, or (2) the minor scholarship examination, now known as the Middle English examination, or (3) the vernacular scholarship examination, or (4) a certificate from the head master of a recognized school that he has studied up to the standard required for the University entrance examination. A large proportion of candidates now come up with the last-named certificate, which implies no standard at all, and the teachers say that a majority of the bad students are in this category. The committee are of opinion—

Proposed standard.

III.—That, in future, the standard of preliminary education required should be that implied by the students having passed (1) the entrance examination of the Calcutta University, or (2) the minor scholarship examination, or (3) the vernacular scholarship examination, and that certificates from head masters be no longer received.

It is believed that the adoption of this rule will of itself ensure the diminution of numbers suggested in Rule I; but if it is not found to have that effect, the committee think that candidates who have passed the University entrance examination should have the preference, and that it should be left to the Principal, in consultation with the teachers, to select from the minor and vernacular scholarship-holders those who seem to be most promising, up to the number required.

The standard of education which a school aims at must be based on the capacity of the *average* student, and by eliminating students whose capacity is small, Rule III will at once raise the average of intelligence and make a higher standard possible, while Rule I, by making *teaching* possible, will enable the reduced number of students to learn much more than they do at present.

The committee believe that were no other alteration made, a considerable improvement in the realized standard of qualification would result, and one or two medical officers are of opinion that no further change is needed except the addition of more practical work. The committee, however, think that in addition—

Changes in system of lectures.

(*c*) *The simplification and diminution of the present courses of lectures* are essentially necessary in order that the highest results possible with the material the teachers have to work upon may be attained. It cannot be too frequently repeated that the object of the school is to train hospital *assistants* and humble village practitioners, who are expected to be satisfied with incomes ranging from Rs. 10 to 60 a month. Everyone is agreed that scientific practitioners cannot be expected from the class of men who will be content with such prospects, but the country cannot at present afford to pay for high scientific attainments. The men should be taught up to as high a standard as is possible, but the standard should also be as practical as possible, so as to fit the men for the work they have to do. As already mentioned, the present course of instruction aims at giving a complete medical education. The students attend lectures, and repeated courses of lectures, on every subject except physiology (which is, strange to say, omitted, although it is the foundation of scientific medicine), with the result that 70 per cent. of them never pass, and the remaining 30 per cent. are so badly qualified as, in the almost unanimous opinions of medical officers, to be quite unfit to have independent charge of small branch dispensaries. This result, the committee think, discredits, not the teachers, but the system of education, which is the mistaken adaptation of a European system to conditions for which it is quite unsuited. It attempts to make scientific practitioners of poorly-educated Bengali youths, with no preliminary scientific training and with few good text-books, by lecturing to them in a language singularly unfitted for the purpose of teaching western science. In many cases, according to the teachers themselves, the boys cannot follow the lectures or understand such text-books as there are. The lectures are delivered *quand même*, and the seed is left to perish or to fructify as may be. The committee are therefore decidedly of opinion—

Present system attempts too much.

Diminution of formal lectures.

IV.—That the giving of formal and didactic lectures should be diminished as much as possible, and that the teaching should in future be much

more tutorial in its character, the teacher expounding a text-book to his class, enlarging or giving his own views when necessary, and by constant examinations seeing that he carries his students along with him, and that they understand everything as they proceed.

All details having no practical bearing, theoretical opinions, and controverted points, should be touched on very briefly, if at all, and constant regard should be had to the ultimate object of the teaching—the treatment of disease. The committee will show hereafter how, in their opinion, this rule should be applied to individual subjects; meanwhile they remark that the highest number of pupils which any teacher can do justice to on this system may be taken at 75. The smaller the class is, the more effective the teaching; and the committee hope that this number will never be reached. As, however, some of the classes are attended by first and second-year students and others by second and third-year students together, this number would often be exceeded under the proposed total, and even 150 might be reached. The committee would get over the difficulty in the following way. At present each course consists of 70 lectures with perhaps 10 examinations in addition. The omission of redundant matter would, the committee think, allow of the reduction of each course to 50 meetings, and the examinations would from a part of the teaching at each meeting. The committee would therefore recommend— Size of classes.

V.—That any class exceeding 75 in number should be divided into two sections, and the teacher made to take the sections on alternate days, attending five days in the week instead of three as at present. To be limited.

The effect of this would be to greatly relieve the students, as each course would be reduced from 80 to 50 meetings. The quarter of an hour now lost in calling the names would, however, be saved, so that the reduction of time available for teaching would be small. The teachers would have to give 20 additional hours per annum to their work—no very onerous addition, considering that the majority of teachers in England are required to give 100 lectures in the winter session alone. Teachers to give more time to the school.

With a view to introduce more fully the tutorial element, the committee would recommend—

VI.—That the resident assistant surgeons be required to assist in the teaching. Resident Assistant Surgeons to be tutors.

There are at present five of these officers, and they are debarred from private practice. They attend in the wards for three or four hours in the morning and go round again in the evening, and take the duty for the day in rotation. The committee would divide the 200 students into five sections as nearly equal as possible, and to put one under each resident assistant surgeon, who should be required to give two hours daily, to assist them in their studies and see that they understand and can apply, both in the class rooms and in the wards, what they are learning. The committee believe that this plan would not only tend to keep the students up to their work, but would introduce a spirit of emulation and rivalry between the different sections; each assistant surgeon possibily taking a pride in having his boys better than those under his neighbour, inasmuch as it would give him an opportunity of showing his fitness for a teachership at Sealdah or elsewhere.

They now pass on to the consideration of individual subjects in the curriculum.

Anatomy.—Students now attend three courses of 70 lectures, each course being a repetition of the previous one. The lectures are, and must be, more of the nature of demonstrations than formal lectures, and many of the students acquire a very fair knowledge of the subject. It appears to the committee, however, that the subject is treated with too much minuteness, and that applied anatomy is not sufficiently attended to. A student who knew all about the cranial nerves and answered difficult prize questions without hesitation, was unable to put his finger on his brachial artery. Another could not put his fingers on the site of a particular nerve. The education of such men is a failure in spite of their book knowledge. The committee would not hamper the teacher; they would like the student to be taught everything that he can possibly utilize, but they would like to see more attention paid to practical points and especially to regional and surgical anatomy. In most English schools separate courses of "descriptive anatomy" and "anatomical demonstrations" Anatomy. Taught with too much minuteness. Too little surgical anatomy.

Separate courses of descriptive and surgical anatomy.

are given. At Scaldah there is no such division; all students attend the same course of lectures, and attend it three or more times. It is quite impossible to cover the ground occupied by these two branches in one course of lectures, and surgical anatomy must be practically uninteligible to first-year students with no knowledge of surgery. The committee are of opinion—

To be instituted.

VII.—That a separate course of 50 lectures on descriptive anatomy and elementary physiology be instituted for first and second-year students, and that the third-year course should be confined to demonstrations of surgical anatomy.

Students should be made to point out the different surgically important spots on the living body, to apply tourniquets, map out regions, &c.

Chemistry.

Chemistry.—Under the present rules each student has to attend three courses of lectures on chemistry, and the statement of the teacher (Appendix p. iv) shows that the course is a very wide one, extending from chemical physics to the analysis for poisons. In the opinion of the committee this is sheer waste of time. They believe that the students actually acquire very little knowledge of the subject, and were it otherwise, neither as hospital assistants, nor as private

Not required.

practitioners, would the men be called upon in after-life to turn their chemical knowledge, if they retain it, to practical use. No one would accept an analysis made by them. It is a fact that many of them after attending three courses are unable to apply the simplest clinical tests to a specimen of urine. A few of the officers consulted by the committee deprecate the abolition of chemistry from the course of instruction on the ground that it is the basis of all scientific medicine. This may be so, and the same may be said of physiology, which is not taught except incidentally; but the committee repeat that the students at Scaldah are not, and are not wanted to be, scientific practitioners, or chemists. So much of chemistry as is necessary to enable them to apply the tests laid down in the Pharmacopœia, and to test specimens of urine, the committee would retain, but they would suggest—

Except the elementary.

To be taught by teacher of Materia Medica.

VIII.—That systematic lectures on chemistry be discontinued, and that the teacher of Materia Medica be required to give so much instruction in elementary chemistry as is required to enable students to understand and apply the tests laid down in the Pharmacopœia and to roughly examine urine for clinical purposes.

Present teacher of chemistry to have work in the hospital.

IX.—That the present teacher of chemistry, who will in future teach only medical jurisprudence, be placed in charge of the small-pox and moribund wards.

These are not now under any teacher, and the teacher of chemistry has hitherto been excused hospital work on the ground that his time was much occupied. The abolition of the chemical lectures will give him four hours a day now devoted to lectures and preparation, and two of them may well be utilised in the interest of the sick.

Therapeutics to be separated from Materia Medica.

Materia Medica.—In this branch also three courses of lectures are required. It is a favourite subject with students, and is admirably taught, although perhaps too minutely. Considering the great practical importance of the subject the committee would make no change in the present number of courses, but the lectures will have to be slightly compressed, so as to allow of the elementary instruction in chemistry suggested in VIII. In dividing the class into sections the junior and senior classes should be kept apart, the former receiving instruction only in Materia Medica proper, the latter in practical and applied therapeutics. It is quite impossible for first-year students to understand "the actions of each class of medicines on the different tissues, organs, and secretions of the body described in minute detail" when as yet they are entirely ignorant of the tissues, organs, and secretions.

Surgery. Teaching to be more practical.

Surgery.—No alteration in the number of the present courses is required, but the committee hope that the new teacher will give more time to practical teaching than has yet been done. No examinations have hitherto been held in this class on the ground that there was no time for them, while some 15 lectures out of 70 were devoted to the one subject of irritation, on which a single lecture would be ample. The course ought to include practical work in bandaging, in surgical manipulations, the application of splints, trusses, &c., use of tooth forceps, and similar points hitherto almost entirely neglected.

Medicine. Lectures too full and detailed.

Medicine.—The teacher of medicine takes great pains with his class, and during the session 1877-78 met the students 89 times, besides holding 32 oral

examinations. The lectures are very full and detailed, and seem to be above the capacity of a large number of the students, judging from the fact that only a small proportion, a fifth to a sixth, are said to succeed in passing. No practical instruction can be given in class, but full attention should be given in the wards to the illustration of all points brought forward in the lecture room, as well as to strictly clinical matters, such as the testing of urine, use of stomach-pump, enema, &c., percussion and stethoscopy, physical diagnosis and the art of prescribing. There is great need for practical work in this direction, and no better means of improssing the features of disease upon the minds of students than by making them diagnose cases and defend and give reasons for their diagnosis before their fellows. The teacher of medicine should also illustrate, as far as possible, pathological points in the *post-mortem* room, and the therapeutic action of medicines when speaking of the treatment of disease.

Practical work needed.

Midwifery.—It is difficult to see why two courses of 70 lectures each on this subject should ever have been required. Natives of India seldom, if ever, employ an *accoucheur* in cases of natural labour. They will occasionally apply for assistance in difficult cases. If one thing is certain more than another in obstetric practice it is this, that no man who has not had considerable practice in the management of natural labour is properly qualified to interpose instrumentally in difficult cases. Yet so few are the opportunities for seeing natural cases at Scaldah, that many students have never seen one at all, most of them have never seen an instrumental case, and all are unfit to be entrusted with the use of instruments; with which they would certainly do more harm than good. As a matter of fact also they are not supplied with obstetric instruments.

Two courses of lectures on midwifery unnecessary.

Opportunities for seeing cases limited.

The teacher takes much pains with his class, and utilizes, as far as possible, the material for clinical teaching at his command. As a rule, the students answer questions very well and have a fair literary knowledge of the subject, a knowledge likely to fill them with a false confidence, and make them interfere in cases which they ought to leave alone. The committee think—

X.—That only one course of lectures on midwifery, including diseases of women and children, is necessary; and that it should be elementary merely; and that no attempt should be made to teach operative midwifery.

Course should be elementary.

Every effort should be made to let the student see as many natural labours as possible, and to teach him what he ought to do in emergencies when instruments are not required.

Medical jurisprudence.—In the opinion of the committee no hospital assistant is competent to give scientific evidence in medico-legal cases, and they consider it a grave evil that he should have to do so. As a matter of fact, however, he is frequently called upon to give evidence, and it is therefore essential that he should be as little unfit as possible for this most important and most difficult work. At present he is taught in two courses of 25 lectures each, but gets no practical instruction, and is, perhaps, posted to a charge before he has ever seen a *post-mortem* examination in a judicial case. The result is that native doctors fail egregiously in this part of their work. The course of lectures as described by the teacher (Appendix p. iv) is very full; but students, as a rule, fail to answer well, and on a recent tour of inspection the Secretary found that only two hospital assistants out of seven in independent charges knew how to work a stomach-pump, from which their uselessness in cases of poisoning may be inferred. The committee believe that some formal lectures are necessary on this subject, but that much more can be taught by demonstration than by lectures, and they would recommend—

Hospital assistants unfitted to give satisfactory evidence in judicial cases.

Get no practical instruction.

Lectures necessary.

XI.—That only one course of 30 lectures be required in medical jurisprudence, in which the subject of injuries to the person should be treated in some detail.

The symptoms, mode of treatment, and *post-mortem* appearances in cases of poisoning should be taught, but not analysis for poison.

XII.—That the present second course should be abolished, and that practical instruction should be given in the following manner:—

Practical instruction to be given.

All suburban police cases should be sent to Scaldah instead of to Alipore for report and *post-mortem* examination. The students should make the necessary dissection under the eye of the teacher himself, who should dictate the report, and give evidence when called upon. He should point out to the students the injuries, morbid appearances, &c., found, expound each case to them, and recall

Suburban police cases to be sent to Scaldah.

Teacher to give evidence when necessary.

to their minds such parts of his formal discourses as bear upon it, explaining in what way each of his remarks tells for or against the theory of the case furnished to him by the police. He should teach them to discriminate between wounds and bruises inflicted before and after death, and show them the sort of work they will have to do. One case thus carefully demonstrated will do more to fix facts in a student's mind than any number of lectures. In the practical examinations the students should be made to form opinions and dictate reports, which should be checked and criticised by the other students and by the teacher.

To explain cases to the student.

The foregoing reforms, if carried out, will have the effect of considerably lightening the student's labours, so far as attending lectures is concerned. The details of the proposed course are given in the margin. The saving would be 110 hours in the first, 219 in the second, and 156 in the third year. This saving will, however, be more than made up in the first and third year by the time spent with the tutors as suggested in VI. During the first year students should, as now, be taught dispensing. During the second and third years they should attend hospital practice as at present, but more regular attendance both of teachers and students should be enforced and the clinical instruction made more systematic than it can be at present. The limitation of numbers will render this easy, and no detailed rules need be laid down. The principle should be the sub-division of classes into small sections, and the giving of a defined amount of work to each student. The committee would lay down a rule—

Proposed curriculum.

PROPOSED COURSE.

First year.	Hrs.	*Second year.*	Hrs.	*Third year.*	Hrs.
Descriptive Anatomy	50	Descriptive Anatomy	50	Surgical Anatomy	50
Materia Medica with Elements of Chemistry	50	Materia Medica	50	Therapeutics	50
Dissections	...	Surgery	50	Surgery	50
Dispensing	...	Medicine	50	Medicine	50
		Medical Jurisprudence	50	Midwifery	50
		Dissections	...	Dissections	...
		Hospital Practice	...	Medico-legal Examinations	...
				Hospital Practice	...

Clinical instruction to be more systematic.

XIII.—That no student be admitted to the final examination until he can produce a certificate of having done practical work for six months in the dispensary, for nine months as dresser and clinical clerk in the surgical wards, six months as clinical clerk in the medical, and three months in the female wards to the satisfaction of his teachers, and also a certificate from his tutors that he has worked diligently under them. He should also have certificates of regular attendance at all his classes and of having dissected every part of the human body.

Certificate required prior to examination.

(*d*) *Method of Examination.*—At present all the subjects are taken at the end of the third year. Formerly a division of the examination was tried, but is declared by the unanimous voice of the teachers to have failed. It was found that before the final examination came on the boys had forgotten all about the subjects in which they had already passed, a significant comment on the system of instruction. It has been found in England and elsewhere that division of the examinations is a great help to thoroughness both to teacher and taught. It lessens the labours of the students and at the same time allows of a higher standard of knowledge being demanded. It is simply impossible for any student, however diligent, to remember the multitudinous details of a large number of subjects, each of which is practically limitless. Yet he is liable to be asked questions on any part of each one of them at the discretion of the examiner. He does his best to cram his memory with all sorts of unnecessary information, and is concerned more with what he thinks will help him to pass than with what will be most useful to him as a practitioner. The examiners, on the other hand, knowing how hopeless it is that he can know everything thoroughly, are obliged to be content with a smattering. By dividing the examination, only three or four instead of eight or nine subjects have to be remembered in detail at one time; the student can concentrate his attention on them, and the examiner may expect, and gets, a higher class of answers to his questions. The simplification suggested in the course of instruction will, the committee think, do away with the practical objections formerly experienced, and they think—

Division of examination.

Advantages of this.

XIV.—That in future there should be two examinations—the first, at the end of the second year, to include descriptive anatomy, the elements of physiology and chemistry, materia medica and pharmacy; the second, at the end of the third year, on surgery (with surgical anatomy), medicine (with

Two examinations in future.

therapeutics), midwifery (with diseases of women and children), and medical jurisprudence.

It will be seen that the second examination includes the practical parts of the subjects embraced in the first examination.

The committee are of opinion that, for the present at least, the examinations should be oral, and that they should be as much as possible practical. They think it would be a great advantage to the students if some more defined standard of examination than at present exists could be arranged for. They think also that, as far as possible, the examinations at the other vernacular schools should be assimilated to those at Sealdah. At present the examinations are conducted by the staff of the Medical College without any remuneration; they are taken at such odd times as may be convenient, and the students are often kept in suspense for weeks. The committee would recommend—

To be oral for the present.

XV.—That a board of three paid examiners, one of whom should vacate yearly, should be appointed, with the teachers of the Sealdah school as assessors, to conduct the examination of all vernacular students, and that one general examination should be held annually as at present.

Board of Examiners to be appointed.

XVI.—That no student failing to pass either of his examinations at the second attempt be permitted to remain in the school.

Two chances to be allowed.

This rule is necessary in the interest of new students. It is found that good students seldom fail at present, and that men who fail once very seldom improve much. The examination held by the committee showed that third-year students were much better than fourth and fifth-year men.

XVII.—That school examinations be held at the end of each year, and that all students who do not obtain marks equal to a third of the total be struck off the books.

(*c*) *Increased practical work.*—The opinions of the committee on this point are fully indicated in the foregoing pages.

It seems to them that the scheme proposed will lead to a very great improvement in the qualification of Hospital Assistants, and that the increased percentage who will pass in future will give sufficient men for the present wants of the public, especially as the district schools now contribute their quota. Thus Dacca expects to pass about 25, Patna 25 to 30, and Cuttack 12 to 15 men a year. Allowing 20 per cent. on the establishment of 440 for deaths, resignations, and transfers, the local Government requires 88 men a year, so that a considerable margin will remain to meet private demands. The committee now pass on to a few special recommendations.

Improved results expected.

Supply of men should be equal to all demands.

XVIII.—That the Superintendent of the Sealdah Hospital who has already been made *ex-officio* Principal of the School, with full powers, should be made generally responsible for the carrying out of the new programme.

Superintendent to carry out the new programme.

XIX.—That all future teachers be appointed for twelve months on probation, and be not confirmed in their appointments until they have proved their capacity as *teachers*.

Future teachers to be appointed on probation.

XX.—That as an inducement to good work, a teacher be eligible to promotion to the pay of the next higher grade when he has completed half of his septennial period in the lower grade, provided he be recommended for the increase by the Principal and the Surgeon-General.

To be eligible for early promotion.

XXI.—That the privilege of private practice at present allowed to the teachers be continued to them.

To have privilege of private practice.

XXII.—That the demonstrators in anatomy be restricted from private practice and made to give their whole time to their work, acting as special tutors in anatomy.

Demonstrators of Anatomy to be restricted from practice.

XXIII.—That future resident surgeons be specially selected by the Surgeon-General and appointed for six months on probation, and be eligible for re-appointment for a second period of two years if specially recommended.

Resident Assistant-Surgeons to be eligible for second four of duty.

XXIV.—That no casual students be allowed.

XXV.—With the exception of I, which has been already provided for, and XVI, the operation of which might be postponed for a year in order that it may not bear too heavily on men already in the school, the committee think that these recommendations should come into force at once.

Recommendations to be acted on at once.

The appendices explain the present system of education at Sealdah and give the evidence of the teachers before the committee. It has not been thought necessary to print that of the Council of the Medical College nor of the medical officers consulted by the committee.

J. O'Kinealy.
C. Macaulay.
A. J. Payne.
J. Jones.
S. C. Mackenzie.
A. S. Letherbridge.
R. Harvey.

APPENDIX A.

Statements by the teachers in the Scottish Medical School showing the character of the teaching.

(No. 1.)

Dated Calcutta, the 19th April 1878.

From—ASSISTANT SURGEON TAHIRE KHAN, KHAN BAHADUR, Teacher of Medicine and Clinical Instructor, First Medical Ward, Campbell Medical School and Hospital, Scottish.

To—The Superintendent of the Campbell Medical School and Hospital, Scottish.

In reply to your letter No. 1147, dated the 20th March last, I have the honour to submit the following details of the working of the class of medicine I have the honour to teach.

2. With the exception of the term of summer vacation, extending from the 15th of April to the 15th June yearly, and other authorized holidays, I lecture to the vernacular class students of the Campbell Medical School throughout the year, commencing each year's course of lectures after the middle of June and bringing it to a close about the latter end of the month of February next year, immediately after which the annual examinations of the school commence.

3. From ill-health, or engagement in other public duties, I might miss a lecture or so, now and then; otherwise the general run of each year's course continues as stated above.

4. I lecture on alternate days, *i.e.* on Tuesdays, Thursdays, and Saturdays. From the master roll of the class I find that, during the session about to terminate the following number of lectures have been delivered by me, and this might safely be taken as the average of the number of lectures delivered annually—

In June	1877	...	...	...	...	5	lectures.
" July	"	...	...	...	...	12	"
" August	"	...	...	...	...	13	"
" September	"	...	...	...	...	12	"
" October	"	...	...	...	...	7	"
" November	"	...	...	...	...	10	"
" December	"	...	...	...	...	10	"
" January	1878	...	...	...	...	13	"
" February	"	...	...	...	...	7	"
				Total	...	89	"

5. I lecture on the principles and practice of medicine; briefly stating, they may be stated to comprise the following subjects:—

(*a*)—A rapid view of the principles of medicine.

(*b*)—A short review of the general diseases.

(*c*)—*Fevers.*—In this portion of the course the prevailing forms of the miasmatic fevers, their causes and consequences, the prevalent forms of eruptive fevers, subjects of vaccination and inoculation, the common forms of continued fevers, are all discussed and treated at some length.

(*d*)—Diseases of the alimentary canal and digestive organs come next in order. In the lectures the subjects of dysentery, diarrhœa, and the diseases of liver, &c., are treated fully.

(*e*)—Diseases of the urino-genital organs.

(*f*)—Diseases of the respiratory and circulating organs.

(*g*)—Diseases of the nervous system.

(*h*)—With the exception of pointing out certain prevailing forms of skin diseases as are to be met with in the wards of the hospital, generally speaking I do not occupy the time of the students in giving any special set of lectures on the subject.

6. Ever since my connection with the teaching staff of the Medical College and of this school, I have been in the habit of holding bi-weekly examinations. The senior and junior pupils of the class are examined on separate days of the week. As it is quite impracticable to get the students for examinations at any other hour of the day, therefore I hold them just before the commencement of the hospital works, *i.e.* from 6 to 7 a.m. generally. The examinations are always oral, never written; for I am of opinion that one can make out a great deal more of the general qualifications and capacities of a student from a *viva voce* examination than from a set of questions put on paper and replied. The advantages of such an examination as advocated are not without their immense gain to the entire body of the students present. During this course I have held 32 oral examinations.

7. In class-rooms, lectures on practice of medicine are more from their very nature consent of any practical instructions; but at the end of each year's course lectures on practical vaccination are always given; these are invariably accompanied with practical demonstrations. Children with vaccinated arms, vaccine eruptions in their various stages

and phases, the mode of arm-to-arm vaccination, and the different paraphernalia required to illustrate them, are each and all exhibited to the assembled class. In carrying out this portion of my work I have received assistance through the kind orders of the Superintendent-General of the Vaccine Department."

8. Besides these detailed above, certain other descriptions of practical instruction are imparted by me in the wards of the hospital. These I shall have the honor of detailing hereafter.

9. In answering the first portion of the fourth query of your letter, I beg to state in general terms that I have the general medical supervision of patients admitted in the First Medical Ward of Campbell Hospital, and the resident surgeon of the ward is in their immediate and direct charge. In all cases requiring advice and counsel my services are invariably availed of and promptly rendered. All serious and complicated cases of diseases are placed directly under me in the "clinical ward" of the hospital.

10. In accordance with paragraph 3 of the Resolution of Government of Bengal, General Department (Education), dated the 29th November 1870, I am in direct and immediate "*charge of a certain number of beds in the hospital for purposes of clinical instruction.*" The number of such patients generally averages to 20, and comprises such important and selected cases as might be well suited for purposes of clinical instruction. To all the senior students of the class, who might happen to be on duty at the time, these cases are marked off in rotation. As clinical clerks, students are expected to draw out the clinical reports of such cases, and enter them in a journal allowed from the institution. On my morning rounds such reports, together with the daily progress of each case, the effects of remedial agencies made use of, and the changes (if any) produced in the symptoms, and so forth, are daily read aloud (by the clinical clerk) in the presence of the assembled students. Intricate points bearing on the physical signs, matters relative to diagnosis and prognosis of such cases, variations of symptoms from the usual standard, &c., are always noted down by me or the resident assistant surgeon, on the bed-head tickets of such patients. These are copied out verbatim by the clinical clerks in their hospital diaries.

11. When the reading of such cases is gone through, the students are then questioned on various matters connected with the nature of the cases, and the principles of treatment, &c.,&c., of all such cases, the diagnosis of whose diseases depend on careful chemical or microscopic examination of urine, sputum, fecal, or vomited matters, &c., &c., the mode of conducting such examinations, and those requiring to be illustrated with diagrams, all of these are shown by me. The clinical clerk in charge of the case is also expected to carry on such rough analyses as are required for the testing for albumen, sugar, bile, and so forth. These are also performed under my guidance and supervision. Physical examination of the organs of respiration and circulation, the various morbid sounds in connection with their diseased states are made especial subjects of their study, and are pointed out to them by the bedside. The time occupied in carrying out my duties as clinical teacher varies much, depending altogether on the number and importance of the cases that might be present at one time in the ward; but, generally speaking, more or less than two hours per day are occupied in going through them.

12. On the death or discharge of clinical cases, their reports are again read over to me by the clinical clerk, and it is from this final report that I am enabled to form my opinion as to the manner in which the clinical clerk may have performed his bedside duties, the way in which he may have kept up his diary, and of the regularity, or otherwise, of his attendance in the wards of the hospital. Remarks pertaining to these matters are entered in a special register, which I call "*record of the clinical clerks*," and to this book I always refer when making out the certificates of character and conduct of students who work in the First Medical Ward.

13. Every case of importance, whether in a pathological point of view, or whether as illustrative of the prevailing forms of disease of India, when terminating fatally in my ward, has an autopsical examination made. The actual opening of the body, the taking out of the viscera, and so forth, are performed by the clinical clerks, who might have been in immediate charge of the case, assisted by other students on duty in the wards; the pointing out of the alterations produced from morbid processes and such other changes are pointed out and described by me. Clinical clerks in my ward are expected to enter such details of *post-mortem* examinations in their hospital journals. As usual in exceptional cases, when bodies are claimed by friends or required for judicial and other purposes, no *post-mortem* examinations are held.

14. Morbid specimens of interesting cases are taken and deposited in the museum.

(No. 2)

Dated Calcutta, the 12th April 1878.

From—Assistant Surgeon Jogoo Bundoo Bose, M.D., Teacher of Materia Medica, Campbell Medical School, Sealdah.

To—The Superintendent of the Campbell Medical School and Hospital, Sealdah.

With reference to your circular No. 1147, dated the 30th March, I have the honor to forward the following information in answer to the several points of inquiry made in it.

1st.—The average number of lectures in Materia Medica varies from 50 to 60 a year. The summer session, from the 15th of June to the 15th of November, is the time fixed for Materia Medica lectures; but as it is impossible to complete the course within this period, it is continued to the middle of December, and sometimes to the end of the month. The lectures are given every alternate day, as is fixed in the programme.

The course of Materia Medica embraces a consideration of classification of medicines in regard to their origin from the different kingdoms of nature, either mineral, vegetable, or animal, and the mode in, and the living agencies which operate to insert their actions on the different organs of the body after their introduction into the system through the various channels of the body by different methods of application. A brief account of the imponderables, with their actions on the human economy and their uses in disease, are also described. The measures and weights used in the British Pharmacopœia are discussed. Medicines are then divided according to their most important properties into classes, such as astringents, tonics, stimulants, sedatives, antisepticks, emetics, cathartics, diuretics, diaphoretics, expectorants, cholagogues, emmenagogues, uterotonics, stimulants, sialagogues, errhines, rubefacients, epispastics, escharotics, demulcents, emollients, diluents, protectives, antacids, antalkalis, anthelmintics, and antisyphilitics.

The actions of each class of medicines on the different tissues, organs, and secretions of the body are then described in minute detail, and the medicines under each class are again subdivided (if they are capable of division) into other groups on account of certain numbers of them exerting some peculiar influence on a certain organ in addition to their general action on the body. For instance, the class stimulants is first divided into general and permanent stimulants, and then into cerebral, spinal, cardiac, utero-ovarian, &c.

Each medicine under a certain class is then described in regard to its sphenomena, physical, and chemical properties, its physiological actions on the human system, its medicinal virtues and uses in disease, with a detailed account of its doses and pharmaceutical preparations.

In this way the description of each remedial agent under each class is gone through till the whole of the medicines contained in the British Pharmacopœia is exhausted. A brief account of sheep native drugs which can be substituted for costly European medicines is also given.

2nd.—The students are periodically examined on the various subjects which are described in lectures, on an average once a month. The examinations may be either oral or written.

3rd.—In connection with the lectures on Materia Medica, the students receive practical instruction in the subject in the Materia Medica museum of this institution, and which consists in making them familiar with the appearance and physical properties of the various European and native drugs and medicines used as remedial agents.

4th.—I have charge of 20 beds in the Second Medical Ward for the purpose of giving clinical instruction. The time devoted to this instruction varies from an hour to two hours every morning, owing to the nature and number of interesting cases present in the ward. The cases that find admission in the clinical ward are generally those of fevers (malarious, typhoid, and eruptive), diarrhœa, dysentery, dyspepsia, diseases of the chest (bronchitis, pneumonia, phthisis, and pleurisy very frequently), and diseases of the heart (in rare occasions), rheumatism, diseases of the brain and spinal cord (hemiplegia, paraplegia, tetanus), diseases of the kidney and dropsies, and sometimes cases of poisoning by opium, dhatura, and arsenic, &c.

In the clinical lectures, the student's attention is drawn to the previous history of the case under consideration, the etiology of the disease, its diagnosis and prognosis, and the particular line of treatment most suited to the malady. The pathognomonic symptom of the disease (if there be any) is particularly impressed on the student's mind. The student is practically taught percussion and auscultation at the bedside of the patient, and every endeavour is made to imprint on his memory the value of each sound in relation to a particular disease. He is practically instructed to detect the presence of albumen, sugar, and bile in the urine by chemical reagents and other appliances, and how to take its specific gravity. The urinary casts and deposits, as well as other morbid growths and products, are shown to him under the microscope, and their respective value in the diagnosis of a disease is especially pointed out.

To each student, serving as clinical clerk in the ward, is assigned a number of cases, the daily history of which he is made to record and read out to me every morning, and a detailed account of treatment and diet he is ordered to enter into his journal. After the discharge or death of a patient, the clinical clerk in charge of the case is made to read out the case from the commencement to the end, and is marked good or bad according to the manner in which he records it.

In the event of death, the clinical clerk in charge of the case is generally made to perform *post-mortem* examinations of the body under my supervision, and all morbid alterations and appearances in the diseased organs are carefully recorded and explained to him and the other students in minute detail. In these demonstrations, the pathological appearances of the most prevalent diseases of the country are described to the students, and every endeavour is made to impress on their minds the value of *post-mortem* examinations in clearing up doubts.

(No. 3.)

Dated Calcutta, the 24th April 1878.

FROM—ASSISTANT SURGEON KANTE LALL DEY, RAI BAHADUR, Teacher of Chemistry and Medical Jurisprudence, Campbell Medical School, Sealdah.

To—The Superintendent, Campbell Medical School, Sealdah.

With reference to your circular No. 1147, of the 20th ultimo, I have the honor to submit the following answers to the enclosed questions.

1st.—I have to lecture on two subjects, Chemistry and Medical Jurisprudence.

The course of chemical lectures continues from the 15th June to the 14th of November of each year, or the summer term. The months of March and April are taken up with the annual examination after the lectures are closed. The lectures are delivered every other day throughout the working days of the year, and on those days on which chemical lectures are delivered, which, with those of toxicology, compose about three-fourths of the total lectures; two or three hours, exclusive of the lecture hours, are employed in preparing for experiments. This, total number of lectures corresponds with the number of working days allotted to me.

The course of chemical lectures consists of the following subjects:—

Firstly.—Chemical Physics, comprising properties of matter and forces, weights and measures, hydrostatics with special reference to specific gravity; pneumatics with special reference to the properties of atmospheric air, gases and their diffusion, and heat with its various phenomena.

Secondly.—Chemistry proper, comprising the non-metallic elements and metals with their compounds as taught by the modern system of nomenclature, with copious illustrations, special reference being made to all the chemical compounds treated in the British Pharmacopœia, and also the testing of ordinary poisons.

The course of Medical Jurisprudence comprises two divisions,—forensic medicine, and toxicology. The former embraces the following subjects; medical evidence, identity, sexual disability, rape, pregnancy, delivery, abortion and foeticide, infanticide, drowning, hanging, strangulation, suffocation, deaths by fire, lightning, starvation, and from cold, wounds, mental unsoundness, and life assurance. The latter, or toxicology, embraces the general condition of poisoning, the chief irritants, narcotics, and acro-narcotic poisons frequently employed in this country, with their antidotes readily available. Instructions are also given as to how to proceed to treat a case of poisoning, how to employ stomach-pump; in case of death, how to conduct a *post-mortem* examination, illustrated on a dead subject, and how to report and to transmit the viscera to a chemical examiner.

On non-lecture days, I prepare for lectures and experiments, according to the requirements of each lecture.

2nd.—My lecture hours are from 3 to 4-15 P.M. The routine prescribes one hour for lecture; but I generally devote in addition half an hour to recapitulation and oral examination. I also hold occasional written examinations, and on some days I hold regular oral examinations.

3rd.—My lectures on Chemical Physics, Chemistry, and Toxicology, are throughout illustrated by practical experiments.

4th.—I have no charge of hospital patients for the obvious reason that the duties of a chemical teacher are of a nature quite different from those of a medical man: his time is occupied with investigations and experiments connected with this special branch. This is the reason, I believe, why Professors of Chemistry in the United Kingdom and in India are not burdened with hospital work, and the same practice prevails in this institution.

The above statements do not convey a full idea of the way in which my official time is occupied. References are constantly made to me by Government, by the Surgeon-General, and other departmental heads for identification, examination of, and opinion on, substances connected with the Indian Materia Medica, and for collecting and description of Indian drugs for European exhibitions, and institutions both European and Indian. Constant demand is also made upon my time in connection with the work of the Government Calcutta Economic Museum and the educational department, as the examiner of vernacular text-books. I also hold other honorary public duties in connection with the University, the Municipality, and the Calcutta Police bench. I employ my spare moments in the preparation of text-books for instruction in chemistry, physics, and medical jurisprudence, and also the indigenous drugs of India.

(No. 4.)

Dated Calcutta, the 20th April 1878.

FROM—ASSISTANT SURGEON RAI SAW NARAIN DASS, BAHADUR, Teacher of Surgery, Campbell Medical School and Hospital, Sealdah.

To—The Superintendent, Campbell Medical School and Hospital, Sealdah.

In reply to your letter No. 1247, dated 30th March last, I have the honour to state to the following points:—

1. My course of lectures consists from 75 to 90 lectures a year, commencing from 15th June to the end of February. I lecture three a week, that is to say, every alternate day, according to the school programme. The subjects of lectures comprising my course

are as follow:—Irritation (and, for the convenience of the students, I have published it in a book) and, *secondly*, Inflammation (I have also published it in a pamphlet); and I make the students pay particular attention to these two subjects, because they form the foundation of Surgery; and while lecturing on these two subjects, they are clinically taught at the bedside of the patients, particularly in the morning, when I go round the wards. After this I lecture on the subjects of my "Minor Surgery," consisting, *firstly*, of the nature of duties of the clinical clerks and dressers, how to prepare poultices, lotions, &c., and how to give certificates for the patients when required by the police, &c.; *secondly*, the principle and practice of bandaging, and the students are made to learn them practically in the hospital; *thirdly*, splints and pads; *fourthly*, ligatures and tactures; *fifthly*, ligation of the arteries and veins; *sixthly*, leeching, bleeding, and cupping; *seventhly*, counter-irritation, &c., including actual cautery, &c.; and *eighthly*, the description of carbolic acid, drainage tube, &c.; and for your and Committee's better information I beg to send you a copy of "Irritation," a copy of "Inflammation," and also a copy of "Minor Surgery."

2. As I finish my course of lectures every session, I allow the students to read the first part of my "Surgery" at home, instead of lecturing it to them, a copy of which I beg to send you for the Committee. This volume contains from congestion to the hospital gangrene, including diptheria, pyæmia, and guinea worms. The subjects are very plainly written in easy Bengali language, and easily to be understood by any who has acquired little knowledge of anatomy, and those who cannot understand any part of this volume are told to come over to me for explanation either after my lecture, or on alternate days when I do not lecture.

3. After I have done lecturing on minor surgery, as stated above, I give lectures on wounds, including hydrophobia, glanders, dissecting wounds, and snake-bites, and herewith I beg to send you for the Committee the copy of the "Wounds" I have published, and the subjects are in the press; and I believe the whole of "Surgery," including the operation part, will soon be out of the press.

4. I do not think I need mention any further in detail the subjects on which I lecture, and need only refer to the last final examination paper of Professor Partridge, the Examiner. You will see in it that Professor Partridge has not left any subject in surgery to ask questions upon to the students, and he was very particular to examine the students in bandaging, and almost every student has obtained *good* marks in bandaging.

5. As for operative surgery on the dead bodies, I show the students of my class the operations of amputations, of excisions, of ligations, trepanning, tracheotomy, insufflation, and lithotomy.

6. As I am to finish my lectures every year or session, I do not get time to examine my class weekly or monthly; and I asked Dr. Gayer on the subject. He says that if the whole of surgery is to be finished in each year or session, we cannot spare a single day for the examination of the students; and, says he, that if Government holidays are stopped, then we could get time to examine the students monthly, if not weekly.

7. As stated above, there is no oral or written examination in surgery weekly or monthly; but at the end of the session, and before the final examination in surgery, I examine the students, both theoretically and practically, on the various subjects of my lectures up to the day fixed for the final examination.

8. As stated above, the practical instructions consist in bandages, splints, showing the instruments, and in operative surgery.

9. I have the charge of the surgical wards, male and female, and second surgical wards have lately been amalgamated, and the patients under my charge are 75 to 100, or more, and clinical instructions are given to those students serving as dressers in my wards, morning and evening, on the subject of diseases the patients are suffering; and in any operation when performed, I give lecture on that operation to those who are present; and *post-mortem* examinations are generally made by the students serving in my wards, either in the presence of the Resident Surgeon of my wards, or in my presence; and I or the Resident Surgeon demonstrate to the students present every pathological condition of the organs or parts dissected, and the *post-mortem* examination of each case is written out and attached to the bed tickets of the patients, and they are kept in charge of the Resident Surgeon for our or for the student's reference.

(No. 5.)

Dated Calcutta, the 6th April 1878.

From—ASSISTANT SURGEON CHUNDER MOHUN GHOSE, Teacher of Anatomy, Campbell Medical School, Sealdah,

To—The Superintendent of the Campbell Medical School and Hospital, Sealdah.

IN reference to your Circular No. 1147, dated 30th ultimo, I have the honor to inform you that my course consists of about seventy lectures, and spreads over from the middle of June to the middle of February, on alternate days, as is fixed in the programme, vacations and other authorized holidays excepted. My course usually consists of the following subjects: muscles, viscera, arteries, nerves, and cerebro-spinal axis, and anatomy of the more important surgical regions.

2. I hold *ad interim* and annual examinations, sometimes *viva voce*, at others written. Their number has varied in different years.

3. I always demonstrate the subjects of my lecture on dry bones and the cadaver, making use of plates and the blackboard for elucidation.

4. Up to this time (6th April 1878) I was in charge of what was called the second surgical ward of the Campbell Hospital, and in this capacity took an equal share with the Teacher of Surgery of all the surgical work in the hospital. The ward having been since abolished, I have at present no hospital charge.

(No. 6.)

Dated Calcutta, the 6th April 1878.

From—Assistant Surgeon Doyal Chunder Shome, Teacher of Midwifery, Campbell Medical School, Sealdah,

To—The Superintendent, Campbell Medical School and Hospital, Sealdah.

In answering your letter No. 1147, dated the 30th ultimo, I have the honor to state, as I have been appointed to this school in June last, my answer will embody the working of one session only.

I took my class 84 times during the last session, having them three times a week as fixed in the programme. The course was begun in the middle of June and continued till the middle of February (vacations and holidays excepted). The subjects on which I lectured were pelvis and female organs of generation, ovulation and development of fœtus, signs and symptoms of pregnancy, diseases of pregnancy, abnormal pregnancy, abortion, premature labour, natural labour, the puerperal state, unnatural labour (including all kinds of difficult labour, malpositions, mal-presentations, &c.), hœmorrhage during and after pregnancy, rupture of uterus, inversion of uterus, puerperal convulsions, obstetric operations, induction of premature labour, puerperal fever, phlegmasia dolens, puerperal mania, amenorrhœa, menorrhagia, dysmenorrhea, endometritis, moles, hydatids, inflammation of uterus, pelvic cellutitis, hæmatocele, tumours of the uterus, polypus, displacement of the uterus, and ovarian dropsy.

2. I examined the students orally once a week, so that I held 28 examinations or one after every two lectures. Besides the above, I held a written examination last month.

3. I availed myself fully of the appliances at my disposal to make the lectures as practical as possible. The pelvis, the organs of generation, the fœtal skull, the leather fœtus, and the instruments commonly used in cases of difficult labour were fully illustrated.

4. I have to look after the female ward of the Campbell Hospital, the average number of patients varying from 70 to 100. I give clinical instructions on every important case admitted in the ward. The principal subjects of clinical instruction during the past session were pregnancy, natural labour, ovarian dropsy, vesico-vaginal fistula, pelvic hæmatocele, retroversion and prolapse of uterus, retention of urine, hemiplegia, dropsy, fevers, and their sequelæ, dysentery, cholera, and the commonly seen diseases of the chest.

There was no regularity as to the time I talked with the students on these cases. On some occasions I had detained them about two hours, at others, *i.e.* when there were no interesting cases, I allowed them to go within an hour.

I held *post-mortem* examinations on some important cases, and demonstrated pathological appearances of diseases whenever I had an opportunity of doing so.

(No. 7.)

Dated Calcutta, the 15th April 1878.

From—Assistant Surgeon Lal Madhub Mookerjee, Teacher of Ophthalmic Surgery and Medicine, Campbell Medical School, Sealdah.

To—The Superintendent, Campbell Medical School and Hospital, Sealdah.

With reference to your memorandum No. 1147, dated the 30th March 1878, I have the honor to report that the course of ophthalmic medicine and surgery consists of some 30 lectures, taking place once a week, and lasting from the middle of June to the end of March.

The subjects treated of are anatomy of the orbitic cavity and its contents, including the eyeball, diseases and injuries of the conjunctiva, cornea, iris, lens, vitreous, retina, choroid, and optic nerve. The disorders of refraction and accommodation of the eye, such as short-sightedness, hypermetropia, &c., are carefully gone into towards the termination of the course.

There is no prize at present for the class of ophthalmic medicine and surgery, and it is not at present the practice on that account to hold the annual test and honour examination; but I hold two oral examinations during the session to enable me to judge of the progress of the students, and I make it a point before commencing my lecture to examine briefly the class on the subject of the previous lecture.

Throughout the course of lecture my chief aim usually is to teach the students all practical points connected with the subject. While lecturing upon the anatomy of the orbit and eyeball, I not only take the opportunity of demonstrating the subject upon dry

bones, but also make use of plates and bull's eyes to familiarize the students with soft structures as well as regards the diseases of conjunctiva, cornea, iris, and lens. I dwell particularly upon them, keeping in view that, as future Native doctors, these are the very complaints which they shall have to deal with most frequently. I furnish them with ample notes and practical hints on their diagnosis and treatment, and not unfrequently I take over patients from the ophthalmic hospital representing the typical cases in order to illustrate my previous lectures on such diseases. In short, I endeavour to make my lectures as practical as I can, and I avoid all theoretical controversy which might embarrass the students before they are well grounded on the well-established principles of this branch of science.

I hold also the appointment of House Surgeon of the Ophthalmic Hospital, which I beg to submit is a separate appointment.

APPENDIX B.

Memorandum on Vernacular Medical Education, by Assistant Surgeon Kanye Lall Dey, Rai Bahadur.

In 1864 the new arrangements for the Bengali class for medical education were introduced. It was started, as stated in the history of the medical schools in Bengal appended to the general report of the Surgeon-General for 1870, with the view of making more efficient provision for the supply of subordinate medical assistants in the Government hospitals, and also for training a superior class of students through the medium of the vernacular for the independent practice of the medical profession. I will not go further back than 1864, when the new arrangements for the Bengali class were sanctioned.

The orders of Government were as follow:—

"The Bengali department will in future consist of two divisions, viz. (1) the native apothecary class; and (2) the vernacular licentiate class. The standard of admission for the native apothecary class will be somewhat lower than the standard for the old Bengali class, while the course of instruction will remain the same, and candidates will be required to enter into a covenant to serve Government for a period of three years from the date of their certificate of qualification, or, in default, to pay a fine of Rs. 200. For the vernacular licentiate class the standard of admission will remain the same as for the old Bengali class; but the course of instruction will be extended, and will include clinical training in the hospital, in order to fit the students for independent practice among the poorer classes of their countrymen. These arrangements are to be brought into operation at the commencement of the college session of 1864-65.

"The vernacular licentiate class was opened at the commencement of session 1866-67, with every prospect of success. Previous to session 1867-68 a proposal was made, and sanctioned experimentally, to provide instruction for this class in midwifery and the diseases of women and children, and an additional teacher was appointed to teach these subjects, commencing with session 1867-68.

"Proposals were brought forward during the year 1869-70, having for their object the provision of a course of lectures in chemistry and medical jurisprudence for the Bengali and Hindustani classes. The main consideration which led the Government of Bengal to recommend these proposals to the Government of India was the obvious desirability of increasing the practical medico-legal knowledge of Native doctors in the interior. Complaints have been frequently made to Government of the want of knowledge of these subjects shown by the majority of the Native doctors in charge of sub-divisions, and Judicial officers placed at a distance from the chief station of a district are to a great extent left without any adequate professional assistance in the investigation of the causes of suspicious deaths, and the precise nature and extent of injuries to the person, and thus labour under difficulties which the proposed measure will in course of time tend to remove. It was also proposed to throw the lectures open to the students of the vernacular licentiate class, who ultimately practise as private practitioners."

These preposals were sanctioned by Government.

Formerly there were two vernacular classes—the one called the Hindustani class, and the other the Bengali class. In 1873 the vernacular classes were converted into a separate school under a distinct Superintendent, and removed to Sealdah; the Hindustani class was transferred to the Temple Medical School at Patna. The teachers, who were relieved of the double duty of teaching both classes, were charged with hospital work in the Campbell Hospital. Four years after the establishment of the school on the new basis, the apothecary class was abolished, and students were brought up only in the licentiate class; or, in other words, the two classes were amalgamated.

About fourteen years have elapsed since the establishment of the vernacular classes for medical education on the new basis, and it is therefore time to consider whether the new scheme has fulfilled its objects. The question is whether the usefulness of the numerous rising class of medical assistants, properly called Native doctors, and professional apothecaries and licentiates has been such as to justify public expectation; in fact, whether they have, as intended, proved efficient practitioners of the European system of medicine. In

1863 Dr. Walker, Inspector-General of Civil Hospitals and Dispensaries, North-Western Provinces, wrote as follows :—

"I think that in all possible cases a Sub-Assistant Surgeon ought to be appointed to the charge of a dispensary. The education of the Native doctor makes him a tolerable surgical assistant, but it is not intended to qualify him to be an independent operator; and it must not be forgotten that any popularity which a dispensary acquires in a neighbourhood invariably results from the quick and certain benefits of a bold, but discriminate, surgery. The question of rewarding deserving Native doctors by placing them in charge of dispensaries is one quite apart from their fitness for the duties they will be called on to discharge. My own experience, and that of every medical officer, is that one native in 500 is fit to be entrusted with the sole charge of a dispensary. In making this statement I am not underrating the services of our Native doctors. I am merely asserting that they will be placed in positions for which their education never intended them; and although the reward may be well bestowed on them as individuals, the end of supplying dispensaries with efficient medical aid will not be obtained."

After more than ten years Dr. Walker, in writing on the same subject, remarked—

"After the lapse of a good many years, and with extended experience, I cannot modify the opinions which I then expressed. That there are popular subordinates of the Native doctor or hospital assistant class in charge of branch dispensaries I do not deny; but their popularity depends, not on the practice of western medicine or surgery, but on social qualification or in their readiness to adopt the humoral pathology of the Baids and Hakims, and talk glibly about hot and cold medicines and food, throwing overboard all that they have learnt in our class."

Our experience in Bengal has not been so unfavourable; but here, too, the Native doctor, by reason of his too rudimentary and defective education, has not been so useful as we had expected him to be. It is observable that in scientific professions the usefulness of professional men cannot be wholly dependent on professional education, which, even under the most elaborate system, is often of an elementary character. One condition under which that education may be turned to the best advantage is the preparatory general education of the person engaged in a profession, and his ability to improve upon professional education by reading, observation, and experience. Native doctors as a body enter the medical schools in Bengal with just so much knowledge as is necessary for a candidate to pass in the minor vernacular scholarship examination, that being the knowledge required of them as a qualification for admission. Some of them may have a knowledge of English to the extent of the standard prescribed for the Calcutta University Entrance Examination, and when that knowledge is possessed it is a great help to them in the acquisition of a knowledge of the European system of medicine. The medical instruction imparted to students of their class in the course of three years' study is necessarily of a very elementary character, and most of the students enter upon the duties of life with this rudimentary knowledge, with scarcely any capacity to improve it by subsequent study.

In my humble opinion the present system of vernacular medical education is susceptible of great improvement without entailing additional expenditure; and if we have a clear understanding of what is actually required, and frame the rules accordingly, much may be affected in the way of placing it on a satisfactory footing.

I think it was a mistake to have amalgamated the apothecary class and the licentiate class in the Campbell Medical School. A class of trained compounders is a great *desideratum* in this country. Facilities ought to be offered to men desirous of serving as apothecaries or compounders in public and private dispensaries to acquire the necessary training; and in order to provide for it, I would recommend the revival of the apothecary class, which would allow of a lower standard of qualification being exacted from candidates for admission. I would give them a thorough practical education, that is to say, rudiments of Materia Medica, embracing both European and native drugs, with some knowledge of pharmaceutical chemistry, and ditto of practical anatomy, practical surgery, and practical midwifery, necessary to the execution of such duties as the setting of fractures, bandaging and dressing of wounds, attending cases of labour, uterine hæmorrhage, and the like, and practical medicine. The course ought not to exceed two years. Some knowledge of English ought to be made a *sine qua non*, in order to enable the apothecary to understand English prescriptions and English labels, as well as the technical terms used in instruction.

The aim of the licentiate class ought to be higher. I would insist in all cases upon a good knowledge of the vernacular and a tolerable knowledge of the English language. In my opinion no medical student in this country can acquire a fair knowledge of the European system of medicine who is not acquainted with English. The vernacular language has not yet attained to that state of improvement as to dispense with a knowledge of English for a student in studying European science. The very nomenclature, which is itself very extensive, is English or European, and a student who has some knowledge of English can understand it much better and more quickly than one who is utterly ignorant of it. I have found from experience that the text-books which have been translated and compiled for the use of the vernacular students on the method recommended by Dr. C. Macnamara in conveying the meaning of scientific terms in Bengali, by "transliterating the English or Latin terms, and giving in brackets the word in the Roman character," have not been of much efficacy to students who know little or nothing of English. Besides, medicine is a progressive science; and unless the student is in a position to prosecute his study after leaving the school, he will be behind the age, and necessarily at a great disadvantage. A knowledge

of English will enable him to extend and improve his knowledge of medicine. Perhaps the minor scholarship course, which provides for a certain amount of knowledge of the English language, will be the best test for admission for the licentiate class.

The defects in the present system of instruction in the Campbell Medical School, in my humble opinion, may be summed up as follow: *Firstly*, that students are admitted without reference to a proper preliminary education; *secondly*, that there are no fixed text-books for students; *thirdly*, that lectures are more theoretical than practical; *fourthly*, that there are no fixed principles for the guidance of examiners; *fifthly*, that failed students are permitted to appear at the examinations without restriction; *sixthly*, that failed students are re-admitted without restriction.

The points noted above are partly questions of discipline, and partly of instruction The first are of great practical importance; because, if the soil be bad, the outturn cannot be good. I have already said that no student should be admitted into the school who has not a good knowledge of the vernacular and a tolerable knowledge of English. Then I think that failed students should not be allowed more than two chances for each annual examination. If a student fails successively for two years at each annual examination, there cannot be much hope for him; and to go on with such hard bargains from year's end to year's end is simply waste of time, energy, and money. On the same principle I would not enroll students who, having failed for two years successively for the examination, may after an interval come in for re-admission.

With regard to instruction I am of opinion, that there ought to be fixed text-books. At present the students have no fixed text-books, and some of them do not consult any books at all. They take notes of lectures, and as for text-books, they manage as best they may. This is a serious defect in our system of instruction, which is partly answerable for the defective training of our students. In the next place the lectures given in the school ought to be more practical than theoretical. This point I will notice separately. And, *lastly*, the examiners ought to be told what should be the standard of test, what value should be attached to theoretical knowledge, and what value to practical knowledge, and how far they should test the general knowledge of the students, instead of diverting their attention to a few knotty questions connected with special theories, which may not come into general use at all in the examination of diseases or in the practice of medicine.

The last point that I have reserved for consideration is the course of instruction. I propose to consider the subjects *seriatim*.

Anatomy.—The teacher of anatomy commences his course with bones, ligaments, and muscles. This course lasts till the end of summer. In winter he lectures on viscera, circulatory and nervous systems, and such part of visceral pathology as he thinks fit. Generally the subjects are very minutely described, keeping pace with the present advanced state of the science, to meet the requirements of the examinations. What we attempt here, in my opinion, is too much. By teaching on this method we overtax the powers of the student, while he, in his endeavour to learn all that is communicated to him, acquires a very imperfect knowledge of the elements of the science. I think we may impart sufficient knowledge of this subject by modifying our plan, that is, by dividing the course between the teachers and the demonstrators. Practical knowledge of the bones, ligaments, and muscles, may be acquired by the help of demonstrators and interrogatories; this work may be divided between the two demonstrators, each to have charge of a division of a class. The teacher thus relieved may be employed in delivering lectures on physiology, or on such parts of the subject as will help the student to understand the principles of medicine and surgery. In the place of elaborate and minute lectures on the general distribution of vessels and nerves, I would substitute a general knowledge of the subject.

Materia Medica.—In teaching Materia Medica, the measures and weights as employed in the British Pharmacopœia claim, in my opinion, prominent attention, followed by a knowledge of the chief vegetable, animal, and mineral drugs, and preparations comprised in the British and Indian Pharmacopœias. This instruction should also comprehend the method of selecting active medicinal re-agents ordinarily employed in hospital practice, attention being paid to the virtues of the less expensive indigenous drugs in the place of expensive Europe drugs; and in order to facilitate a knowledge of this subject, frequent reference should be made to works on Indian indigenous drugs. Regular exhibitions should be made at the Materia Medica museum to identify the drugs, and distinguish their preparations from others by their physical characteristics, mentioning at the same time how their virtues may be affected by adulteration, and in what points. Too much attention cannot be paid to the proportion of active ingredients in any preparation, to the defining of doses, and to the physiological action and uses of drugs in particular diseases. The last point to which instruction should extend is the making of prescriptions, and the practical way of dispensing medicines.

Chemistry.—In chemistry I would confine attention to the following points:—Incidental knowledge of some of the important physical and chemical laws; a course of pharmaceutical chemistry, including the chemistry of the British Pharmacopœia; an elementary knowledge of the chief elements and their compounds, acids, alkalis, and saline substances, both organic and inorganic. I would also recommend a little theoretical and a thoroughly practical instruction at the laboratory in the various manipulations. The next points should be tests of acids, alkalis and metals, and identification of salts by their physical characteristics. Some knowledge of the method of examining animal secretion would prove highly useful.

While on this subject I would observe that as the laboratory of the Campbell Medical School, where instruction in practical chemistry can be given, has been almost completed at a heavy outlay, and the apparatus for teaching physics and chemistry also fairly supplied, full advantage may fitly be taken of these arrangements to give practical instruction in a subject a knowledge of which is essential to a proper understanding of other branches of medical studies, particularly Medical Jurisprudence and Materia Medica.

Medicine.—In medicine the course now followed gives much superfluous knowledge. We dwell much on diseases which are rare in this country, and the course necessarily becomes so extensive that it can hardly be completed in two years It will be enough if the teaching of medicine be confined to diseases peculiar to India, with incidental reference to foreign diseases.

Surgery.—Regarding this subject I need only say that the lectures should be more practical than they now are. The students should be particularly taught the use of instruments.

Midwifery.—To the present course in this subject I would add instruction in children's diseases as treated in Dr. Goodeve's work on the management of children.

Medical Jurisprudence.—Instruction on this subject should be supplemented by a few *post-mortem* examinations, in order to enable the students to hold such examinations independently hereafter. It would be an advantage if there be time for teaching the method of identification of mineral and vegetable poisons by proper tests. Native doctors are now frequently called on as witnesses in poisoning cases, and the ends of justice are so often defeated by the unsatisfactory character of their evidence that I would give due attention to the identification of poisons.

I would recommend periodical *vivâ voce* examinations by the teachers themselves, say once a fortnight, by questioning students at random in order to test their progress during the fortnight.

The licentiate course should be extended to four instead of three years as at present, that is to say, two years to the senior course and two years to the junior course. And, lastly, I would limit the number of students for the school. The classes are now so unwieldy that the teachers in many cases fail to make their influence felt, owing to the too wide area of their labours.

APPENDIX C.

Evidence of the teachers at the Sealdah Medical School.

No. 1.

Evidence of Assistant Surgeon Tamiz Khan, Khan Bahadur.

1.—Are you teacher of medicine at the Sealdah Medical School?	I am.
2.—What pay do you receive?	Rs. 350.
3.—That is Rs. 150 more than the pay of your grade, is it not?	Yes.
4.—Have the teachers the privilege of private practice?	They all practise I do not know of any orders prohibiting or allowing it.
5.—Do the Resident Assistant Surgeons practise?	Not the present men, so far as I know.
6.—Do the teachers consider the privilege a valuable one?	They do.
7.—Do you think it would be fair to prohibit the present or future teachers from practice?	I do not think it would be fair. The pay is small. Many clerks get as much as Rs. 600 or Rs. 700 a month. Living in Calcutta is expensive, and the teachers have to maintain a certain position.
8.—If the privilege were abolished, what would be the effect?	I think the appointments would not be sought after by the class of men required.
9.—Do you not think the extra Rs. 150, with the inducement of living in Calcutta, would attract good men?	I cannot say.
10.—Is this (memorandum 1 in Appendix B) a fair description of your duties at the school and hospital?	Yes.
11.—How long do you spend in the wards daily?	The hours are from 7 to 9, but I spend a longer time as a rule.
12.—How many beds have you?	From 80 to 120.
13.—Do you treat all the cases, or only those in the clinical ward?	I only treat those in the clinical ward, but supervise the treatment of the others. There are 20 beds in the clinical ward.

14.—Who treats the others?	The Resident Assistant Surgeon.
15.—Is this the intention of Government?	I believe so.
16.—Could you treat them all yourself?	No, impossible; if I have to give clinical instruction, a single case will sometimes take an hour.
17.—How much extra time would you require if you did?	About three hours extra.
18.—How many Resident Assistant Surgeons are there?	I believe there are five.
19.—Could not the number be reduced?	No, not without lessening the efficiency of the hospital.
20.—Would not two suffice?	I don't think so. There are sometimes 600 patients.
21.—Might not good hospital assistants or native doctors be substituted if there were one Assistant Surgeon on duty for them to refer to in difficult cases?	I could not trust a native doctor, and I do not think one Assistant Surgeon could be on duty for 24 hours at a stretch without breaking down.
22.—Why could you not trust a native doctor?	Because there are many difficult cases which they could not diagnose or treat.
23.—You consider that the treatment of 100 patients is sufficient work for any man?	I do.
24.—Do you think that you can teach your class sufficiently (clinically) in two hours a day?	I don't think two hours sufficient.
25.—How many hours would be required?	I should think three.
26.—How many students are in your class?	I think between 200 and 300.
27.—How often do you lecture?	Three times a week for an hour.
28.—Is the roll called daily?	At lectures and examinations and at the clinique.
29.—How long does this occupy?	Between 12 and 15 minutes.
30.—How often do you hold examinations?	I am not required to do so, but I hold two a week at a separate hour.
31.—Do your examinations count as lectures?	No; I enter them in the muster-book, but don't count them.
32.—Have you any written examinations?	No.
33.—Do you find that the students answer well as a rule?	Good do, bad do not.
34.—What is the proportion of good students?	About a third I think, but the proportion is decreasing since the standard of preliminary education was reduced.
35.—Is there any text-book on medicine?	There is a text-book by Baboo Ganga Parshad Mukerji.
36.—Can the students understand it?	Yes.
37.—Can they follow and understand the lecture?	Most of them do.
38.—Have they, as a rule, a good preliminary general education?	I am afraid not now-a-days. Some cannot even write reports in Bengali, or understand the terms used. We use the English technical terms.
39.—Do many of them know English?	Not many; a minority do.
40.—Do you find that those who know a little English learn more easily than those who do not?	Yes.
41.—Might an English qualification be required?	It would be a decided improvement.
42.—What standard of preliminary education would you adopt?	The Entrance examination of the University; the minor scholarship examination; and the vernacular scholarship examination.
43.—Are the students in your opinion fairly qualified when they receive their licenses?	Fairly.
44.—Are they fit to hold independent charges?	With very few exceptions they are not fit.
45.—Would you expect them to be able to diagnose a case of aortic aneurism, or of mitral insufficiency?	I don't think so.
46.—Could they analyse urine for albumen, phosphates, bile, sugar, &c.?	Yes. They have been taught to do so.
47.—Do you think they have any scientific knowledge of medicine?	I hardly think so.
48.—What practical instruction do you give them?	Analysis of urine; clinical instruction, percussion, and auscultation, and other modes of physical examination.

49.—Can they display the organs properly and write a clear and distinct account of *post-mortem* appearances?

The men now there are taught to do so, and many of them could; but some could not.

50.—Would you expect them to recognize the cause of death in bodies sent to them for examination?

If there were any organic disease present I am sure they could recognize it.

51.—Do you not think that the system of education is too scientific for the class of students you get?

I am afraid it is.

52.—Are they scientific practitioners at all?

I have not come in contact with them in practice.

53.—Would not more practical training be advantageous?

I should think so.

54.—Less of lecturing and more of teaching?

If only three years are allowed, there is too much lecturing; the students are overburdened. If the curriculum were extended, I don't think so.

55.—Do you consider the present system satisfactory?

I think it answers pretty well.

56.—How do you think the knowledge of the students can best be tested?

I think *vivâ voce* and practical examinations should be held, not written.

57.—What system of examination would in your opinion give good students the best chance of passing and ensure the rejection of idle and incompetent men?

I think idle men would fail in the practical part.

58.—Should idle students be allowed to appear for examination?

There is nothing in the rules to prevent them trying, provided they can produce the necessary certificates.

59.—Would it be advisable to divide the examination?

It was once tried, but it was found that when the men came up for final examination they had forgotten all about the earlier subjects.

60.—Should men be allowed to go up repeatedly?

No. If it was a four years' course I would give only two chances; if a three years course I would give three chances. At present men go up five or six times

61.—What percentage of men pass in medicine?

About a fifth or sixth.

62.—Are the examiners lenient?

No. I don't think so.

63.—Are men ever passed out of compassion?

No.

64.—Are lazy students retained in the school?

They used to be turned out. But few have been sent away of late years. They all pay fees except the scholarship-holders. The fees go to Government.

65.—How many men have been there more than three years?

Between 40 and 50.

66.—Are they allowed to pass in one subject at a time?

Yes; if a man passes in Materia Medica and fails in Medicine, he has not to go up in Materia Medica a second time.

67.—If a man fails in an easy branch, is he allowed to appear for examination in in a higher branch, before he has gone up again and passed the lower?

There is no fixed rule. Some examiners allow it, some refuse.

68.—Do you think the standard might be raised?

I think Government would gain by raising it.

69.—Do you think it would improve the results if the numbers were limited?

Yes, distinctly. We turned out better men when the numbers were fewer.

70.—Do you use native drugs in practice?

A few of them.

(No. 2.)

Evidence of Assistant Surgeon Juggo Bundhoo Bose, M.D.

1.—Are you teacher of Materia Medica at the Sealdah Medical School?

I am.

2.—What pay do you receive?

Rs. 350.

3.—That is Rs. 150 more than the pay of your grade, is it not?

Yes.

4.—Have the teachers the privilege of private practice?

Yes.

5.—Do the resident Assistant Surgeons practise?

No.

6.—Do the teachers consider the privilege a valuable one?	Very valuable.
7.—Do you think it would be fair to prohibit the present or future teachers from practice?	No; it would not be fair either to the teachers or to the public.
8.—If the privilege were abolished, what would be the effect?	Only third and fourth class men would accept the appointments—men who saw no prospects of succeeding in practice.
9.—Do you not think the extra Rs. 150, with the inducement of living in Calcutta, would attract good men?	No.
10.—Should the resident Assistant Surgeons be allowed to practise?	No; they should live in the hospital.
11.—Do they live in the hospital?	No; only the one on duty. They ought all to live in the hospital.
12.—Is this (memorandum 2 in Appendix B) a fair description of your duty at the school and hospital?	Yes.
13.—How long do you spend in the wards daily?	Two to three hours.
14.—How many beds have you?	Twenty clinical beds under my immediate charge, and the general supervision of the second medical ward, which contains on an average 80 to 90 beds, but occasionally rises to 140.
15.—Do you treat all the cases or only those in the clinical ward?	Only those in the clinical ward.
16.—Who treats the others?	The resident Assistant Surgeon of the second medical ward, who consults me in cases of difficulty.
17.—Is this the intention of Government?	I believe it is, but I do not know of any special orders on the subject.
18.—Could you treat them all yourself?	I could not treat them all and teach the students at the same time. A single case may take an hour or an hour and a half, to explain.
19.—How are your cases recorded?	By the resident Assistant Surgeon or a clinical clerk. The cases are recorded on the bed-head tickets. I have from 20 to 25 students, and I tell them off to take notes of particular cases. The students record their cases in books.
20.—How many resident Assistant Surgeons are there?	Five.
21.—Might not good hospital assistants or native doctors be substituted, if there were one Assistant Surgeon on duty for them to refer to in difficult cases?	I don't think it would do, because the native doctors could hardly be trusted to diagnose and treat difficult cases, such as divided arteries, fractures, lacerated wounds, typhoid fever, pneumonia, &c.
22.—But with two resident Assistant Surgeons to help, could they not manage?	No. There are sometimes 50 or 60 admissions in a day, and two men could not do it.
23.—But each man would be on duty only on alternate days. Why could he not do it?	Because a man could not come on duty every other day without breaking down.
24.—Could you not trust native doctors in ordinary cases?	I don't think they could be trusted. I should not be happy about it.
25.—In what cases could you trust them?	I think they could be trusted in cases of ordinary fever, cholera, and common diseases.
26.—How often do you lecture?	Three times a week, on alternate days.
27.—How many students are in your class?	Between 250 and 300. Many of them go on for four or more years. If a man is good, he shows it at once.
28.—Is the roll called daily?	Yes.
29.—How long does this occupy?	About 10 to 15 minutes.
30.—How often do you hold examinations?	Once or twice a week.
31.—Do your examinations count as lectures?	No. We only take 10 or 12 students a day.
32.—Have you any written examinations?	Sometimes, but very seldom. They are chiefly oral.
33.—Do you find that the students answer well as a rule?	Passably; not very well; some are good, the majority indifferent.

34.—What is the proportion of good students?
35.—Are the lectures the same each year?
36.—Do you think students gain by repeatedly attending the same course?

About four or five per cent.
Very much the same.
No. I think if a man does not show that he is good, he ought to be turned out after four years, but this would involve the loss of fees to Government; this is the only evil which would result.

37.—Is there any text-book on Materia Medica?
38.—Can the students understand it?

Yes; one by Baboo Durga Das Kur.
I think about three-fourths of them understand it fairly; the others do not. They can read Bengali, but cannot understand technical terms.

39.—Is it a good text-book?

Yes. A very good one. A new edition is in course of preparation.

40.—Do you suffer from the want of text-books, mentioned by Kanye Lall Dey in his memorandum?

No. Not in my branch.

41.—Can the students follow and understand the lecture?

Most of them can; perhaps five or six per cent. cannot.

42.—Do they take notes?

Some of them do.

43.—Have they, as a rule, had a good preliminary general education?

As a rule they have had a good ordinary Bengali education.

44.—Is the standard sufficient?

It might be raised with advantage.

45.—Do many of them know English?

Yes. Probably ten per cent.

46.—Do you find that those who know a little English learn more easily than those who do not?

Yes.

47.—Might an English qualification be required?

It would be an advantage, but I don't think it would be done at Government rates of pay. Government gets the worst men. The good men do much better as private practitioners.

48.—Do you think you could get a sufficient number of English-speaking students who have passed the Entrance examination?

No. Not with the present pay and prospects of native doctors.

49.—Are the students, in your opinion, fairly qualified when they receive their licenses?

Not all; more than half will do for ordinary cases, but the other half; I am afraid . . . .

50.—Are they fit to hold independent charges?

No; except one or two out of four or five hundred.

51.—Would you expect them to be able to diagnose a case of aortic aneurism or of mitral insufficiency?

No.

52.—Could they analyse urine for albumen, phosphates, bile, sugar, &c.?

53.—Do you think they have any scientific knowledge of medicine?

54.—What practical instruction do you give them?

These things are all shown to them, and they are made to do it in the wards.
I feel some diffidence in answering this question.
They are taught to diagnose and treat cases, to analyse urine, and use the stethoscope. I show them morbid appearances, and explain them.

55.—Do you think that you can teach your class sufficiently (clinically) in two hours a day?

I think it is as much as a man can do to teach two hours a day. An hour's clinical teaching is quite as much as the students can profit by.

56.—Can they display the organs properly and write a clear and distinct account of *post-mortem* appearances?

The senior students can, generally speaking, open out bodies; but if left to themselves I fear they would not give a very clear account of the examination.

57.—Would you expect them to recognize the cause of death in bodies sent to them for examination?

The ordinary run of men could not; five or six per cent. could in most cases.

58.—Do you think that the system of education is too scientific for the class of students you get?

Except the lectures on Medicine, Medical Jurisprudence, and Chemistry, I do not think so. The courses named are too elaborate.

59.—Do you consider experimental physics essential to the teaching of Materia Medica?

No. I do not think so.

60.—Do you teach the students the value of native drugs?

Certainly; I teach and show them the substitutes for European drugs, but do not go through the whole indigenous Materia Medica.

61.—Does this description (Appendix C, page IX) of what ought to be taught describe what is taught at present?

No; only partly so. We have no museum of native Materia Medica. I pay very particular attention to this. I teach the students conscientiously about all the native drugs which I think can be relied on.

62.—Do you use native drugs in practice?

Yes; to some extent.

63.—Would it not be a good plan to make the students get up the subjects in books, and examine them on the books, explaining and demonstrating?

I think it would be an improvement, but it is impossible with the enormous number of the present class.

64.—Would not more practical training be advantageous?

In Materia Medica, I think the practical training sufficient.

65.—In the other branches would not less of lecturing, and more of teaching be advantageous?

I think it would be an advantage to give more demonstrations and fewer lectures.

66.—Do you consider the present system satisfactory?

Not altogether.

67.—What system of examination would, in your opinion, give good students the best chance of passing and ensure the rejection of idle and incompetent men?

A practical examination. This would give good men the best chance of passing, and ensure the rejection of incompetent men.

68.—Should idle students be allowed to appear?

No. They should not.

69.—Would it be advisable to divide the examination?

It was tried, but we found that when the men came up for final examination they had forgotten their previous subjects.

70.—Should men be allowed to go up repeatedly?

No. I would only allow one year's grace, and give two chances.

71.—What percentage of men pass in Materia Medica?

Two-thirds; say 60 to 65 per cent.

72.—Are the examiners lenient?

No. We expect a certain standard, and if men do not come up to it, they are rejected. If they answer about two-thirds of the questions they are passed. The questions are not specially easy.

73.—Are men ever passed out of compassion?

No.

74.—Are lazy students retained in the school?

Yes; so long as they pay, they are allowed to remain.

75.—How many men have been there more than three years?

Probably from 30 to 50 men.

76.—Are they allowed to pass in one subject at a time?

Yes.

77.—If a man fails in an easy branch, is he allowed to appear for examination in a higher branch, before he has gone up again and passed the lower?

If he fails in one of the junior branches (Anatomy, Chemistry, and Materia Medica), he is not allowed to go up in the senior branches until he has passed.

78.—Do you think it would improve the results if the numbers were limited?

Yes; if we had diminished numbers, we should be able to raise the standard.

79.—What standard of preliminary education would you adopt?

With present prospects we cannot expect many men who have passed the Calcutta Entrance Examination. I should insist on it or the minor scholarship examination, and would make no distinction between Government men and men going in for private practice. I would abolish the present plan of admitting men with head-master's certificates and vernacular scholarships.

80.—Would it be an advantage to raise the fees?

In a financial point it would not; but it would check the present excessive numbers of students, and would give us a better class of men.

81.—If these restrictions were imposed and these advantages gained, would it not have the effect of limiting students to the private practitioner class and stopping the supply of candidates for Government employ?

Yes; the pay would have to be raised.

82.—Is there anything to prevent men in Government employ from taking private practice?

They cannot count upon it, as they are liable to constant changes. Some of them have good practices.

83.—How would you supply the demand for native doctors if the numbers were diminished?

I think the present supply is in excess of the demand, and that we should do well if we produced fewer and better men. The demand is not a genuine one, but is due to the practically gratuitous education effected.

(No. 3.)

Evidence of ASSISTANT SURGEON KANYE LALL DEY, RAI BAHADUR.

1.—Are you teacher of Chemistry and Medical Jurisprudence at the Sealdah Medical School?	I am.
2.—What pay do you receive?	Rs. 350.
3.—That is Rs. 150 more than the pay of your grade; is it not?	I have no grade. I get the highest pay on account of my special qualifications as a chemist.
4.—Have you the privilege of private practice?	Yes.
5.—Do the Resident Assistant Surgeons practise?	I do not know.
6.—Do the teachers consider the privilege a valuable one?	Certainly; a very valuable one.
7.—Do you think it would be fair to prohibit the present or future teachers from practice?	No.
8.—If the privilege were abolished, what would be the effect?	Government would get only the lowest standard of men, or young men without experience.
9.—Do you think the extra Rs. 150, with the inducement of living in Calcutta, would attract good men?	I do not think so.
10.—Is this (memorandum 3 in appendix B) a fair description of your duties at the school?	Yes.
11.—You have no hospital work?	No; as my duties are heavier than those of the other teachers, I am excused hospital work by order of the Surgeon-General.
12.—How often do you lecture?	On alternate days. On Chemistry during the summer session; on Medical Jurisprudence during the winter.
13.—How often do you hold examinations?	I examine for about half an hour before every lecture, keeping the students for an hour and a half instead of an hour.
14.—Both in Chemistry and Medical Jurisprudence?	Yes.
15.—Is that all your work?	No; I have to prepare for the lectures, and that takes about two hours a day.
16.—But have you no assistant?	Yes; but he is not good enough, and I prepare for all the experiments myself. He does some of the simpler work.
17.—What pay does he get?	Rs. 30.
18.—What are the the duties of Baboo Tara Prasunder Roy?	He takes care of the apparatus. He is Additional Chemical Examiner, and has nothing to do with the Campbell School, and is fully occupied.
19.—Why should not the assistant prepare for all the experiments?	Much of the apparatus is complicated. I have to put it together myself. I go over all the experiments before the lecture to see if they are right.
20.—Can you name any experiments which might not be prepared for by the assistant?	He cannot bend tubes and adapt apparatus. He has also to act as clerk, and has much writing to do.
21.—Have you a complete laboratory and apparatus?	I have got everything I want, and the laboratory is very complete.
22.—Who passes your indent for chemicals?	The Surgeon-General, after it has been passed by the Superintendent.
23.—What is the annual cost of the chemicals and apparatus?	Not above Rs. 200 I think.
24.—How many students are there in the Chemistry class?	The same number as in the other classes.
25.—And in the Medical Jurisprudence class?	Only the 2nd and 3rd-year students.
26.—What is the object of teaching Chemistry to Native Doctors?	To enlarge their minds.
27.—Do you consider it necessary to teach all the subjects mentioned in your paper to Native Doctors?	No; I think certain curtailments might be made.
28.—Do you think it necessary to go into detail concerning all the metallic elements?	Yes; I think so. I go into all those used in medicine, and mention the others cursorily.
29.—Do you go into all alkalis?	Yes; they are very important.

30.—Do you go into organic Chemistry?	I teach the properties of the most useful organic medicines—alcohol, chloroform, &c.
31.—Might not the teacher of *Materia Medica* do this?	He teaches their uses: I their chemical characters.
32.—Is there any text-book on Chemistry?	Yes; I have written one. It is not a translation, but a compilation.
33.—Can the students understand it?	Very well as a rule; but some of them have so meagre a knowledge of their own language that they cannot follow it.
34.—Can they follow and understand the lecture?	The same answer applies.
35.—Could they analyse urine for albumen, phosphates, bile, sugar, &c.	A great many could, I should say; many could not, as they have never had a test-tube in their hands.
36.—Do you think that when they pass they have any scientific knowledge of Chemistry?	Some of them have; but not as a rule.
37.—What practical instruction do you give them in Chemistry?	They are shewn all the experiments, but there is no practical class.
38.—Do you think that the teacher of *Materia Medica* could also teach Medical Jurisprudence, and so much of Chemistry as is required by Native Doctors?	I think he could if the Chemistry were more simplified, and he were relieved of all other duties. He must also be a chemist.
39.—Have the students as a rule a good preliminary general education?	No.
40.—Do many of them know English?	Probably ten per cent. know it fairly, and perhaps 33 per cent. know a little.
41.—Do you find that those who know a little English learn more easily than those who do not?	Decidedly.
42.—Might an English qualification be required?	I think it might be, and it would lead to great improvement.
43.—Do you think the standard might be raised?	Yes; I think only men who have passed the University Entrance Examination or the Minor Scholarship Examination should be taken.
44.—Do you consider the present system satisfactory?	Not altogether.
45.—Do you think it would improve the results if the number of students was limited?	Very much.
46.—What standard of preliminary education would you adopt?	The University Entrance and the Minor Scholarship Examinations.
47.—Do you find the students answer well as a rule at the daily examinations?	About ten per cent. do; the others are always bad or indifferent.
48.—Are the students in your opinion fairly qualified when they receive their licenses?	Not every one of them. They manage to pass, and are sufficiently qualified to become assistants.
49.—Are they fit to hold independent charges?	No; unless they have a knowledge of English and have served for some time under a good master in a station where they have opportunity to learn practically.
50.—What are they fit for?	They are fit to be assistants only, with very rare exceptions.
51.—Would you expect them to be able to diagnose a case of aortic aneurism, or mitral insufficiency?	Certainly not.
52.—Can they display the organs properly, and write a clear and distinct account of *post-mortem* appearances?	Those who have paid attention to the subject can.
53.—How many per cent. pay attention?	About 10 to 15.
54.—Would you expect them to recognize the cause of death in bodies sent to them for examination?	Not except in well-marked cases.
55.—But this is an important part of their duty; is it not?	Yes.
56.—Is there any text-book on Medical Jurisprudence.	Yes; one by myself. It has been approved by the Surgeon-General. It is illustrated by Indian cases, and all the Indian poisons in common use are treated systematically. All students are required to have a copy.

57.—Do you not think that the system of education is too scientific for the class of students you get?

Yes; I think the course requires revision.

58.—Are they scientific practioners at all?

No.

59.—Would not more practical training be advantageous?

Very.

60.—Could you cut down the lectures?

Yes; and make the education more practical. I think it would be good.

61.—How do you think the knowledge of the students can best be tested?

The examination should be as practical as possible; the students should be made to recognize drugs, apply bandages, test urine, test for adulterations, &c.

62.—Should idle students be allowed to appear for examination?

Yes; they must be allowed to try.

63.—Would it be advisable to divide the examination?

Yes; I would have a junior and senior examination.

64.—Should men be allowed to go up repeatedly?

No; I would not allow a man to take the senior branches till he had passed in the junior, and I would only give two chances in each.

65.—What percentage of men pass in Chemistry.

About 90 per cent. The standard is not very high.

66.—Are the Examiners lenient?

Not always.

67.—Are men ever passed out of compassion?

I should think not.

68.—Are lazy students retained in the school?

They are as long as they pay the fees.

69.—How many men have been there more than three years?

About 30 or 40. Some of them go on for seven years.

70.—Are they allowed to pass in one subject at a time?

Yes.

71.—If a student fails in an easy branch, is he allowed to appear for examination in a higher branch, before he has gone up again and passed the lower?

Yes.

72.—How many Resident Assistant Surgeons are there in the Campbell Hospital?

Four on the establishment, I believe. There are also a number of supernumeraries attached for duty.

73.—Would not a good Hospital Assistant or native doctor suffice if there were one Assistant Surgeon on duty for him to refer to in a difficult case?

I don't think it would answer

74.—Why not?

They are not as a rule sufficiently qualified. Some of them might be able to do it. It is my conviction that they are not good enough, but I do not speak from experience.

(No. 4).

Evidence of Assistant Surgeon Chunder Mohun Ghose, M.B.

1.—Are you teacher of anatomy at the Sealdah Medical School?

I am.

2.—What pay do you receive?

Rs. 300.

3.—That is Rs. 150 more than the pay of your grade, is it not?

It is Rs. 200 more. I belong to the 3rd grade.

4.—Have the teachers the privilege of private practice?

Yes.

5.—Do the Resident Assistant Surgeons practise?

I do not know.

6.—Do the teachers consider the privilege a valuable one?

Yes.

7.—Do you think it would be fair to prohibit the present or future teachers from practice?

I do not think it would be fair.

8.—If the privilege were abolished, what would be the effect?

The appointments are now considered prizes, and the best men try for them. They would not do so if the privilege were abolished.

9.—Do you not think the extra Rs. 150, with the inducement of living in Calcutta, would attract good men?

It might attract some who are in stations where there is little practice.

10.—Should the Resident Assistant Surgeons be allowed to practise?

I think they ought not.

11.—Do they live in the hospital?

They have no quarters. I think they ought to live there.

12.—Is this (memorandum 5 in Appendix B) a fair description of your duties at the school and hospital?

Yes.

13.—How long do you spend in the wards daily?

Since April last I have had no hospital charge.

14.—Why were you relieved of the duty?

Because it was considered that there was not sufficient work for two surgeons.

15.—How many beds had you on an average?

Between 40 and 50, but sometimes as many as 70 or 80.

16.—Did you treat all the cases, or only those in the clinical ward?

The more important ones which were used for clinical instruction. I had a general supervision over all the cases.

17.—Who treated the others?

The Resident Assistant Surgeon.

18.—Is this the intention of Government?

Yes; I believe so. Our duties were defined in a Government resolution in 1873, I think.

19.—Could you have treated them all yourself?

I could have done so, but hardly unless I had been resident. With some one to assist I could have prescribed for all.

20.—How were your cases recorded?

On the bed-head tickets by the Resident Assistant Surgeon, or by myself in the more important cases; sometimes by students, but the clinical clerks record their cases in books of their own.

21.—How many Resident Surgeons are there?

I think there are five at present.

22.—Might not good Hospital Assistants or Native Doctors be substituted for the Resident Assistant Surgeons if there were one Assistant Surgeon on duty for them to refer to in difficult cases?

I think average Native Doctors would not do; picked men might; but we cannot always depend on getting such.

23.—Do you think picked men could be got for Rs. 20 a month?

No.; I think if Rs. 50 were given, with prospect of increase, the best men might be induced to take Government service.

24.—But with two Resident Assistant surgeons to help, could they not manage?

If we had picked Native Doctors it might be done.

25.—Could you find many such men among your present third-year students?

I think there would be very few. Some of the second-year students promise better. That is my impression.

26.—Could you trust them to treat ordinary cases?

There are some whom I could trust, but I could not trust to chance men.

27.—In what cases could you trust them?

In ordinary surgical cases such as abscess, secondary syphilis, and other chronic cases, when the treatment is chiefly routine. They could not be trusted in accidents or complicated cases.

28.—How often do you lecture?

On an average I give about 70 lectures.

29.—How many students are in your class?

At present over 300.

30.—Is the roll called daily?

Yes.

31.—How long does this occupy?

About a quarter of an hour. Only the numbers are called, not the names.

32.—How often do you hold examinations?

At intervals depending on the progress made.

33.—Do your examinations count as lectures?

Some do not count. I occasionally examine during part of the lecture hour.

34.—Have you any written examinations?

Sometimes; perhaps once or twice a session.

35.—Do you find that the students answer well as a rule?

No. The majority do not answer very well. They do worse at the written than at the oral examinations.

36.—What is the proportion of good students?

Really good students would not be more than 5 per cent.

37.—How many courses of anatomy does each student attend?

Three courses.

38.—Are the lectures the same each year?

Very much the same.

39.—Do you think the students gain by repeatedly attending the same course?

I think they do.

40.—Is there any text-book on Anatomy?

There is no complete text-book. There are fragmentary books, but a committee appointed by Government did not approve of these.

41.—How do the students manage in default of a text-book?

Those who know English use English books, the others pick up their knowledge as best they can. They trust partly to the lectures, but read from such books as there are.

42.—Might not a text-book be prepared?

Yes; without difficulty, but it should be got by competition.

43.—Can the students follow the lectures?

Not all of them. I should think about half can, but I cannot be positive about it. They are very attentive and quiet during the lecture.

44.—Do they take notes?

Not as a rule. The lectures are of the nature of demonstrations, and they cannot take notes and attend properly at the same time.

45.—Do you teach the bones to the students?

Yes.

46.—Might not the demonstrators do this?

Yes, and they do to a large extent; but I like to go over them myself as they are so important.

47.—Do you teach any physiology?

As much as I think essentially necessary. I explain the circulation, respiration, digestion, &c., and the uses of the chief organs.

48.—Do you think you teach the students too minutely?

I do not think I teach more minutely than the examiners expect.

49.—Do you describe the otic ganglion for instance?

Yes; I do.

50.—What practical instruction do you give them?

All the instruction is of the nature of demonstrations and is more or less practical, except the physiological parts.

51.—How many hours a day do the demonstrators remain in the dissecting-room?

At present from 11 A.M. to 1 P.M.; formerly from 11 A.M. to 2 P.M.

52.—When do they attend?

From November to February, the weather does not allow of dissecting at other times.

53.—How many hours do you yourself spend in the dissecting-room?

About two hours during the dissecting season now that I am freed from hospital work; formerly I could not give so long.

54.—Have the students, as a rule, had a good preliminary general education?

The majority have not, and those who come with Inspector's certificates are the worst; many of them are very stupid.

55.—Is the standard sufficiently high?

The University Entrance and the Minor Scholarship Examinations are sufficiently high. The Vernacular Scholarship Examination is not high enough to guarantee good men, though some of the men are good. The Inspector's certificate is much too low, and most of the men come with that.

56.—Do many of them know English?

Not many. I cannot say what proportion.

57.—Do you find that those who know a little English learn more easily than those who do not?

Those who know a little English do not do well: they read English text-books and cannot profit by them. Those who have passed the Entrance Examination are the best students.

58.—Might an English qualification be required?

I don't think so. With the present prospects sufficient men would not be got.

59.—Are the students, in your opinion, fairly qualified when they receive their licenses?

Fairly qualified for the sort of work they are expected to do.

60.—Are they fit to hold independent charges?

Not all. Only a very few I think.

61.—Would you expect them to be able to perform surgical operations?

Some of them might; and, if they were well looked after for a little time when they have passed, they would become qualified to do so.

62.—Could they analyse urine for albumen, phosphates, bile, sugar, &c.?

Albumen they might; but I do not think they could detect the others.

63.—Do you think they have any scientific knowledge of medicine?

I think not. Some of them have a fair practical knowledge of anatomy.

64.—Could they, as a rule, display the organs properly, and write a clear and distinct account of *post-mortem* appearances?

Some of them could. Perhaps 5 per cent. I am doubtful if more could.

65.—Would you expect them to recognize the cause of death in bodies sent to them for examination?

I do not think the average Native Doctors could.

66.—Are they at present taught to do so?

I cannot say. It is not in my province.

67.—Do you think that the system of education is too scientific for the class of students you get?

I do not think so as far as my own subject is concerned.

68.—Would it not be a good plan to make the students get up the subject in books, and examine them on them, explaining and demonstrating?

In some of the subjects it might be good, if there were good text books. In anatomy it is not necessary.

69.—Would not more practical training be advantageous?

Yes.

70.—In the other branches would not less of lecturing and more of teaching be advantageous?

Yes; but the classes would have to be limited.

71.—What system of examination would, in your opinion, give good students the best chance of passing, and ensure the rejection of idle and incompetent men?

In anatomy I would make the student dissect and demonstrate as well as answer general questions.

72.—Should idle students be allowed to appear for examination?

I think they ought not.

73.—Should men be allowed to go up repeatedly?

No; I would limit their chances to three.

74.—Would it be advisable to divide the examination?

It was tried and did not answer. The men forgot the subjects they had passed in.

75.—What percentage of men pass in anatomy?

On an average two-thirds of those who go up, but only those who have done the requisite dissections are allowed to appear.

76.—Are the examiners lenient?

It varies from year to year.

77.—Are men ever passed out of compassion?

I don't think they are in anatomy.

78.—Are lazy students retained in the school?

Yes, if they pay the fees. We have no power to exclude them. We recommended a number of dismissals last year, but the Superintendent had no power to turn the men away.

79.—How many men have been at the school more than three years?

I don't know.

80.—Are they allowed to pass in one subject at a time?

Yes.

81.—If a man fails in an easy branch, is he allowed to appear for examination in a higher branch before he has gone up again and passed the lower?

No, unless a man has passed in Anatomy, Materia Medica, and Chemistry, he is not allowed to go up for the other branches.

82.—Do you think that it would improve the result if the numbers were limited?

I think it would, especially if the standard of preliminary education were raised.

83.—What standard of preliminary education would you adopt?

The Calcutta University Entrance and Minor Scholarship Examination, and perhaps the higher classes of the Vernacular Scholarship Examination, if there are classes.

84.—Would it be an advantage to raise the fees?

Not unless the standard were raised; and if that were done, it would not be necessary. It might keep away good men who are poor.

85.—If these restrictions were imposed, would it not have the effect of limiting students to the private-practitioner class and stopping the supply of candidates for Government employ?

I don't think the present rates of pay are high enough to secure good men for Government service.

86.—Is there anything to prevent men in Government employ from taking private practice?

They are allowed to practise; but the duties they have to do and the frequent transfers interfere with their opportunities for practice.

87.—How would you supply the demand for Native Doctors if the numbers were diminished?

Raise the pay. Government could command the services of any number of men if sufficient inducement were offered. I think there would still be sufficient for the present demand, and it would be all the better for those who do pass.

(No. 5.)

Evidence of Assistant Surgeon Doyal Chunder Shome, M B.

1.—Are you teacher of midwifery at the Sealdah Medical School?

Yes.

2.—What pay do you receive?	Rs. 300.
3.—That is Rs. 150 more than the pay of your grade, is it not?	Yes.
4.—Have the teachers the privilege of private practice?	Yes.
5.—Do the Resident Assistant Surgeons practise?	They used to do so, but I do not think they have done so of late.
6.—Do the teachers consider the privilege a valuable one?	Yes, they do.
7.—Do you think it would be fair to prohibit the present or future teachers from practice?	The teachers would not consider it fair.
8.—If the privilege were abolished what would be the effect?	It would prevent experienced men from accepting the teacherships.
9.—Do you not think the extra Rs. 150, with the inducement of living in Calcutta, would attract good men?	As a rule Assistant Surgeons prefer Calcutta, but many of them have good practices in the mofussil and would not care to come if the privilege were abolished.
10.—Should the Resident Assistant Surgeons be allowed to practise?	They ought not to be allowed.
11.—Do they live in the hospital?	Not at present. I think they ought to.
12.—Is this (memorandum 6 in appendix B) a fair description of your duties at the school and hospital?	Yes.
13.—How long do you spend in the wards daily?	About two hours on an average.
14.—How many beds have you on an average?	About 100. It varies from 70 to 150.
15.—Do you treat all the cases or only those in the clinical ward?	I see all the new cases and all the important old cases.
16.—Who treats the others?	The Resident Assistant-Surgeon.
17.—Is this the intention of Government?	I believe so. I don't know of any rule on the subject, but I don't think the Resident Surgeon would have been given unless it were so, and I should not have time to give clinical instruction if I had to prescribe for all the cases.
18.—Could you treat them all yourself?	If I had no clinical teaching I could.
19.—How are your cases recorded?	On the bed-head tickets by the Resident Assistant Surgeon; the students take notes in special books which are examined by me
20.—How many Resident Surgeons are there?	I have one directly under me, and an extra supernumerary to help.
21.—Might not good hospital-assistants or native doctors be substituted for the Resident Assistant-Surgeons, if there were one assistant-surgeon on duty for them to refer to in difficult cases?	If we could get well-selected hospital-assistants it might be possible; with average men it would not be.
22.—Do you think picked men could be got for Rs. 20 a month?	No.
23.—But, with two Resident Assistant Surgeons to help, could not average native doctors manage?	No, I do not think so. The Resident Assistants-Surgeons would have to do most of the work.
24.—Could you find many picked men among your present third year students?	Three or four might be good enough.
25.—Could you trust average native doctors to treat ordinary cases?	Yes, in routine cases.
26.—In what cases could you trust them?	In ordinary cases of fever, spleen, diarrhœa, &c., which form the majority of cases.
27.—How often do you lecture?	Three times a week during the session. I gave 84 lectures or examinations in the only complete session I have as yet had.
28.—How many students are in your class?	239; but all do not attend, and between 30 and 40 names have been struck-off since the beginning of the present session.
29.—Is the roll called daily?	Yes, by numbers only.
30.—How long does this occupy?	About 8 to 10 minutes.
31.—How often do you hold examinations?	Once a week; there is an examination after every two lectures by way of recapitulation.
32.—Do your examinations count as lectures?	Yes.
33.—Have you any written examinations?	Only at the end of the year as a test and for prizes.

34.—Do you find that the students answer well as a rule? — No.

35.—What is the proportion of good students? — Less than one-fourth.

36.—How many courses of midwifery does each student attend? — Two courses.

37.—Are the lectures the same each year? — Those on midwifery are the same. I take diseases of women and diseases of children in alternate years.

38.—Do you think the students gain by repeatedly attending the same course? — Yes.

39.—Is there any text-book on midwifery? — Yes; by Mir Ashraf Ali, my predecessor, and by Anuda Chandra Khastgir of the North Suburban Hospital.

40.—Can the students understand these books? — Many of them can; all of them cannot.

41.—Are they good text-books? — Mir Ashraf Ali's is poor in matter; Khastgir's is good, but is written in difficult language.

42.—Can the students follow the lectures? — I think they can.

43.—Do they take notes? — The good students do and many of them have very full notes.

44.—Do you think you teach the students too minutely? — I don't think so.

45.—Do you describe the physiology of reproduction for instance? — Yes; in a simple sort of way. I don't go deeply into embryology.

46.—And the theories of conception? — In a cursory manner.

47.—Do you think an average native doctor could diagnose pregnancy in the fourth month? — No.

48.—Could he be trusted to apply the forceps or perform craniotomy? — No.

49.—Would you expect him to diagnose and treat successfully a retroflexed pregnant uterus? — No.

50.—He is taught all about it, is he not? — Yes.

51.—What practical instruction do you give them? — I give them as many labours as possible, but all cannot see cases. I point out very carefully the symptoms and signs of pregnancy. I have as many of them as possible to all operation cases and I give them clinical instruction in diseases of women. As many students as possible are made to conduct examinations. I demonstrate through the speculum whenever possible.

52.—Does the Resident Assistant Surgeon help in the demonstrations and clinical teaching? — No; he would do so if required no doubt.

53.—Have the students, as a rule, had a good preliminary general education? — Many of them have as much as could be well expected; there are some who have not.

54.—Is the standard of preliminary education sufficiently high? — I think the standard of the Calcutta University Entrance, and, to some extent, that of the Minor Scholarship Examination is sufficiently high. Some of the boys who have passed the Vernacular Scholarship Examination do very well. Some of the students are very stupid.

55.—Do many of them know English? — More than half know it more or less; less than one-fourth know it well enough to use English books.

56.—Do you find that those who know a little English learn more easily than those who do not? — Yes.

57.—Might an English qualification be required? — No doubt we should get a better class of men and better native doctors, but, if the school is to remain a vernacular one, it seems unnecessary.

58.—Are the students, in your opinion, fairly qualified when they receive their licenses? — They are sufficiently qualified to treat ordinary cases and to work as assistants.

59.—Are they fit to hold independent charges? — No.

60.—Would you expect them to be able to perform surgical operations? — The minor ones.

61.—Could they analyse urine for albumen, phosphates, bile, sugar, &c.?

Many of them could detect albumen.

62.—Do you think they have any scientific knowledge of medicine?

Very few have.

63.—Would they, as a rule, display the organs properly, and write a clear and distinct account of post-mortem appearances?

So far as my experience goes, the average students have very imperfect knowledge of how to do this.

64.—Would you expect them to recognize the cause of death in bodies sent to them for examination?

I am not in a position to give any positive opinion.

65.—Are they at present taught to do so?

I do not know.

66.—Do you think that the system of education is too scientific for the class of students you get?

As regards midwifery, I do not think I teach any thing which is not essential, if the students are to be taught midwifery at all.

67.—Would it not be a good plan to make the students get up the subject in books, and examine them on them, explaining and demonstrating?

I think they would learn more in that way than by listening to lectures, and, if the classes were smaller, the students would work better; as it is many do not listen to the lecture.

68.—Would not more practical training be advantageous?

Yes, the more practical training the better; but it is difficult to teach such large classes practically.

69.—What system of examination would, in your opinion, give good students the best chance of passing, and ensure the rejection of idle and incompetent men?

A combined written and oral examination taken in conjunction with the results of the weekly examinations. The oral examination should be partly practical.

70.—Should idle students be allowed to appear for examination?

No.

71.—Should men be allowed to go up repeatedly?

I would not allow more than three chances.

72.—Would it be advisable to divide the examination?

It was tried and failed; the men forgot the subjects in which they had passed.

73.—What percentage of men pass in midwifery?

Formerly, I believe, midwifery was considered a comparatively unimportant subject and few failed. In the last two examinations 2 and 6 men were rejected out of about 70.

74.—Are the examiners lenient?

The examiner does not exact a very high standard.

75.—Are men ever passed out of compassion?

No; I don't think so.

76.—Do you think it would be possible to amalgamate Chemistry and Materia Medica?

Yes. It is done in the Agra school. The students do not require an elaborate knowledge of chemistry.

77.—Are lazy students retained in the school?

They are as a rule, but some names were struck-off the other day.

78.—How many men have been at the school more than three years?

About 40 or 50.

79.—Are they allowed to pass in one subject at a time?

Unless they pass in the junior subjects, Anatomy, Materia Medica and Chemistry, they are not allowed to appear for the senior examination.

80.—Do you think that it would improve the result if the numbers were limited?

Yes. We could *teach* the students more, we should know them better and have more influence over them.

81.—What standard of preliminary education would you adopt?

The Calcutta University Entrance and the Minor and Vernacular Scholarship Examinations. It would be better not to take boys with head-masters' certificates.

82.—Would it be an advantage to raise the fees?

It would limit the numbers, but would exclude many poor men, who are often among our best students.

83.—If these restrictions were imposed, would it not have the effect of limiting students to the private practitioner class, and stopping the supply of candidates for Government employ?

I think that there would still be sufficient both for private practice and for Government service.

84.—Is there anything to prevent men in Government employ from taking private practice?

It depends on the particular charge they have, some have time for private practice.

E. F. M. & others—Regr. No. 3225—76—3-6-79.

GENERAL DEPARTMENT.

EDUCATION.

CALCUTTA, THE 14TH JUNE 1879.

RESOLUTION.

READ—

A Report on Medical Education at the Campbell Vernacular Medical School at Sealdah by the Committee appointed to enquire into Medical Expenditure in Bengal.

THE Lieutenant-Governor has read with much interest the admirable and thoroughly practical report of the Committee. He entirely agrees with the Committee in the view they take of the general course of education which should be followed in the Campbell and other similar Vernacular Schools of Medicine, and as to the class of practitioner which such schools are intended to supply. As the Committee remark, the passed student of a Vernacular School is "intended primarily for a hospital assistant, able to carry out intelligently the orders of the medical officer under whom he is placed, and not to be an independent practitioner until he has served for at least two years to the satisfaction of his superior officer. Even then he is only put in charge of comparatively unimportant dispensaries, in localities too poor to support an Assistant Surgeon. A secondary object of the school is to educate village practitioners, who will be content to settle in poor localities, to take the place now occupied by uneducated *baids*, *hakims* and *kobirajes*, and extend to the poorer classes of the community, as far as possible, the benefits of a European medical training."

2. The teaching at present given is altogether too theoretical and above the heads of the pupils, who, as a matter of fact, are found to have but little practical knowledge of their profession when brought to the test of actual work. The classes are at the same time far too large to be properly managed and controlled, a defect in the present system to which, as much as to the course of instruction followed, the failure of the institution to turn out a useful body of native doctors is, in the opinion of the Committee, mainly attributable.

3. To effect the requisite improvements five things are found to be necessary:—

(*a*).—To limit the numbers taught in the school;
(*b*).—To raise the standard of admission;
(*c*).—To simplify and reduce the present courses of lectures;
(*d*).—To make the periodical examinations more frequent and methodical;
(*e*).—To make the training generally more practical.

4. To secure due limitation in the numbers the Committee recommend—

I.—That in future no more than 200 students be allowed in the school, and that only sufficient entries be permitted each year to keep up the numbers.

The number at present on the rolls being 430, the reduction should be effected gradually by admitting only 50 new candidates annually, until the normal number of 200 is reached.

II.—That those students agreeing to enter Government service, if called upon, should be received on payment of the existing fees, while private students should be called upon to pay fees more nearly proportioned to the cost of their education.

These proposals, which will not affect present pupils, are approved, and the Director of Public Instruction will be asked what fees should be charged

to private pupils. At the same time he will be desired to consider how far it would be possible to admit all candidates at the highest rate of fee, providing at the same time for periodical competitive examinations for the admission of the necessary number of men required each year for the Government service, returning to the selected candidates the difference between the existing fees and the higher general rate proposed.

5. To secure a better standard of qualification on entrance, the Committee make proposals for raising the test for admission. There are now four tests for admission to the school, viz., either (1) a certificate of having passed the Entrance examination of the University, or (2) the minor scholarship or middle English examination; or (3) the Vernacular scholarship examination; or (4) a certificate from the head-master of a recognized school, countersigned by the Divisional Inspector, that the candidate has studied up to the University Entrance examination. The last test is known to have worked badly, and the Committee would discard it in future, retaining the other three. Their proposal is —

III.—That, in future, the standard of preliminary education required should be that implied by the students having passed (1), *the Entrance examination of the Calcutta University, or* (2) *the minor scholarship examination, or* (3) *the vernacular scholarship examination, and that certificates from head-masters be no longer received.*

6. The Director of Public Instruction, who was asked to favor the Lieutenant-Governor with his remarks upon the Committee's report, has pointed out the importance, in selecting pupils even for a Vernacular School of Medicine, of allowing a preponderance to English attainments, and he would give the preference to: (1), those who have passed the Entrance examination; (2), those who have passed that examination in two or three subjects, and those who have passed the Middle English scholarship examination; and (3), those who have passed the Middle Vernacular scholarship examination, according to the grades in which they have passed. The Lieutenant-Governor agrees to the modifications suggested by the Director, and the tests for admission will in future be regulated accordingly.

7. In order to lessen the number of lectures delivered, as well as to simplify their character, it is proposed—

IV.—That the giving of formal and didactic lectures should be diminished as much as possible, and that the teaching should in future be much more tutorial in its nature, the teacher expounding a text-book to his class, enlarging or giving his own views when necessary, and by constant examinations seeing that he carries his students along with him, and that they understand everything as they proceed.

V.—That any class exceeding 75 *in number should be divided into two sections, and the teacher made to take the sections on alternate days, attending five days in the week, instead of three as at present.*

VI.—That the resident Assistant Surgeons of the hospital be required to assist in the teaching.

These general suggestions appear to be sound, and have the approval of the Lieutenant-Governor. The attention of the Superintendent and teachers will be called to the detailed remarks and suggestions of the Committee under these and other following heads.

8. The Committee proceed to make the following suggestions as to the character of the lectures to be given in certain subjects, and the extent to which each subject should be taught:—

VII.—That a separate course of 50 *lectures on Descriptive Anatomy and Elementary Physiology be instituted for first and second-year students, and that the third-year course should be confined to demonstrations of Surgical Anatomy. Students should be made to point out the different surgically important spots on the living body, to apply tourniquets, map out regions, &c.*

VIII.—That systematic lectures on Chemistry be discontinued, and that the teacher of Materia Medica be required to give so much instruction in Elementary Chemistry as is required to enable students to understand and apply the tests laid down in the Pharmacopœia and to roughly examine urine for clinical purposes.

IX.—That the present teacher of Chemistry, who will in future teach only Medical Jurisprudence, be placed in charge of the small-pox and moribund wards.

X.—That only one course of lectures on Midwifery, including diseases of women and children, is necessary; that it should be elementary merely; and that no attempt should be made to teach Operative Midwifery. Every effort should be made to let the student see as many natural labours as possible, and to teach him what he ought to do in emergencies when instruments are not required.

XI.—That only one course of 30 lectures be required in Medical Jurisprudence, in which the subject of injuries to the person should be treated in some detail. The symptoms, mode of treatment, and "post mortem" appearances in cases of poisoning should be taught, but not analysis for poison.

XII.—That the present second course should be abolished, and that practical instruction should be given in the following manner:—

All suburban police cases should be sent to Sealdah instead of to Alipore for report and "post mortem" examination. The students should make the necessary dissection under the eye of the teacher himself, who should dictate the report, and give evidence when called upon. He should point out to the students the injuries, morbid appearances, &c., found, expound each case to them, and recall to their minds such parts of his formal discourses as bear upon it, explaining in what way each of his remarks tells for or against the theory of the case furnished to him by the police. He should teach them to discriminate between wounds and bruises inflicted before and after death, and show them the sort of work they will have to do. In the practical examinations the students should be made to form opinions and dictate reports, which should be checked and criticised by the other students and by the teacher.

Various modifications in the other courses of lectures are also suggested, all having the object of simplifying the course of study and making it more practical.

These are matters of a professional bearing, on which the Lieutenant-Governor must generally accept the judgment of the Committee.

9. There are, however, two points upon which he is not prepared to agree with them. The first is the proposal that Rai Kanai Lal Dey, Bahadoor, Teacher of Chemistry and Medical Jurisprudence, should be forced to take charge of the moribund and small-pox wards. This gentleman has hitherto been exempted from clinical work for sufficient reasons, and Sir Ashley Eden is not disposed now to impose it upon him. Some personal consideration may well be shown to such an old and valued servant of Government; but when he vacates his present appointment the Lieutenant-Governor will not object to a different arrangement being made in the case of his successor.

10. The other proposal to which the Lieutenant-Governor must demur is the one that all suburban police cases should be sent to the Sealdah hospital instead of to Alipore for report, and *post mortem* examination. This will entail upon the teachers the necessity of attending the Alipore Courts to give evidence, where they might be detained in a manner likely to interfere seriously with the performance of their duties. There ought to be a sufficient number of dead bodies available from the wards of the Sealdah Hospital itself, or from the Calcutta Police dead-house, for all purposes of instruction.

11. The Lieutenant-Governor sanctions Proposal XIII, which is as follows:—

XIII.—That no student be admitted to the final examination until he can produce a certificate of having done practical work for six months in the dispensary, for nine months as dresser and

clinical clerk in the surgical wards, six months as clinical clerk in the medical, and three months in the female wards to the satisfaction of his teachers, and also a certificate from his tutors that he has worked diligently under them. He should also have certificates of regular attendance at all his classes and of having dissected every part of the human body."

12. With reference to the examinations the Committee make the following suggestions :—

XIV.—That in future there should be two examinations, the first at the end of the second year, to include Descriptive Anatomy, the Elements of Physiology and Chemistry, Materia Medica and Pharmacy; the second at the end of the third year, on Surgery (with Surgical Anatomy), Medicine (with Therapeutics), Midwifery (with diseases of women and children), and Medical Jurisprudence. It will be seen that the second examination includes the practical parts of the subjects embraced in the first examination. The Committee are of opinion that, for the present at least, the examinations should be oral, and that they should be as much as possible practical.

XV.—That a board of three paid examiners, one of whom should vacate yearly, should be appointed with the teachers of the Sealdah school as assessors to conduct the examination of all vernacular students, and that one general examination should be held annually as at present.

XVI.—That no student failing to pass either of his examinations at the second attempt be permitted to remain in the school.

XVII.—That school examinations be held at the end of each year, and that all students who do not obtain marks equal to a third of the total be struck off the books.

13. The Lieutenant-Governor approves of all these suggestions with the exception of XV. The Lieutenant-Governor is unable to sanction the proposal to pay the examiners, which apparently only applies to the case of the Sealdah school. The Professors of the Medical College do the work at present, and should continue to take the duty in turn, the College Council appointing three of them annually to hold the examinations with the help of the teachers of the school.

14. The Committee further think it would be a great advantage to the students if some more defined standard of examination than at present exists could be arranged for; and that, as far as possible, the examinations at the other vernacular schools should be assimilated to those at Sealdah. But they make no attempt to lay down such a standard. The Committee must now be requested to report further upon this point, and to lay down, as far as possible, the necessary standards in all subjects. The standards when settled will, of course, be applied in all medical schools in Bengal, just as the changes in curriculum, proposed for the Sealdah school, must now be made to apply generally. The Committee will also be asked to report on what subjects satisfactory text-books exist, and in what subjects they are still required. The text-books actually in use in the Dacca and other schools should also be considered and reported on.

15. The remaining proposals of the report are these :—

XVIII.—That the Superintendent of the Sealdah Hospital, who has already been made ex-officio Principal of the School, with full powers, should be made generally responsible for the carrying out of the new programme.

XIX.—That all future teachers be appointed for twelve months on probation, and be not confirmed in their appointments until they have proved their capacity as teachers.

XX.—That as an inducement to good work, a teacher be eligible to promotion to the pay of the next higher grade when he has completed half of his septennial period in the lower grade, provided he be recommended for the increase by the Principal and the Surgeon-General.

XXI.—That the privilege of private practice at present allowed to the teachers be continued to them.

XXII.—That the Demonstrators in Anatomy be restricted from private practice and made to give their whole time to their work, acting as special tutors in Anatomy.

XXIII.—That future resident Surgeons be specially selected by the Surgeon-General and appointed for six months on probation, and be eligible for re-appointment for a second period of two years if specially recommended.

XXIV.—That no casual students be allowed.

XXV.—With the exception of I, which has been already provided for and XVI, the operation of which might be postponed for a year, in order that it may not bear too heavily on men already in the school, the Committee think that these recommendations should come into force at once.

The Lieutenant-Governor accepts all these suggestions.

16. The thanks of Government are due to the Committee for their report. The Director of Public Instruction will take steps to have immediate effect given to the foregoing orders.

ORDER.—Ordered that a copy of the above Resolution be communicated to the Committee appointed to enquire into Medical Expenditure in Bengal, with the request that they will favor the Lieutenant-Governor with the report called for in paragraph 14.

By order of the Lieutenant-Governor of Bengal,

A. MACKENZIE,

Secretary to the Govt. of Bengal.

No. 418.

COPY of the above forwarded to the Secretary to the Committee appointed to report on Medical Institutions and Expenditure in Bengal for information and guidance, with reference to his letter No. 207, dated 19th May 1879.

No. 419.

COPY forwarded to the Director of Public Instruction for information, with the request that he will be so good as to see that the orders contained in paragraph 14 of the resolution are carried out in communication with the Superintendents of the Vernacular Medical Schools concerned.

No. 420.

COPY forwarded to the Surgeon-General, Bengal, for information.

No. 421.

COPY forwarded to the Medical Department of this office for information.

By order of the Lieutenant-Governor of Bengal,

A. MACKENZIE,

Secretary to the Government of Bengal.

CALCUTTA,
The 14th June 1879.